





Digitized by the Internet Archive
in 2016

JOURNAL
OF THE
ASIATIC SOCIETY.

No. V. 1856.

*On the origin of writing down historical records among the
Musalmans.—By Dr. A. SPRENGER.*

(Concluded from page 329.)

There is reason to believe that there existed Arabic books, more particularly on religious subjects at and previous to the time of Mohammad.

All the most powerful tribes of Arabia had embraced Christianity, as the Ghassánites, whose chief was king of Petra, the Lakhmites whose representative was king of Hyrah, the Taghlibes, the Taym allát and most of the Arabs who were settled in towns and villages in Najrán and other districts of Yaman.

Only the wild sons of the Najd and of the depth of the desert resisted the progress of civilization. Yet even among them we find Christian priests and hermits, and numerous converts. The chief of the Tay tribe—the celebrated *Hátim Tayy*—was a Christian and he lived in the very heart of the Najd. Barrád, whom I mentioned above, was equally a Christian, and we find Christians—apparently missionaries—preaching in the fair of 'Okázt, we find Christian chapels in Yamámah and Bahrayn, (among the 'Abd Qays) and we find professors of Christianity at Makkah and Madynah.

We have the most positive evidence that there was a religious literature, though probably very limited, among these Christian congregations. When Khálid conquered Hyrah he found young men

immured in monasteries, occupied in multiplying the scriptures. He, like a practical man, gave them wives and made soldiers of them.

Waraqah, the ucle of Mohammad's first wife copied part of the scriptures and Khadyjah herself had read them. From para. 24, we learn that 'Omar transcribed a religious work. I mentioned in a former article, p. 146 *suprà*, that there seems to be internal evidence that the book of Enoch was translated into Arabic before the time of Mohamammad.

It seems there existed profane books as well as religious ones among the Arabs. In the Kashsháf the story of Isfendyár in an Arabic garb is mentioned. There is also reason to suppose that the Jews had Arabic books written in the Hebrew character.

From page 218 *suprà*, it appears that books—no doubt such as had existed a long time previously among Arabic Christians and Jews—spread among the Moslims, but 'Omar put them down with a strong hand.

In order farther to illustrate this subject, I have to say a few words on the Book of Daniel, which is mentioned in paras. 24 and 29 *suprà*.

The book of Daniel which is sometimes met with, and frequently quoted, treats on Oneirocritics and is inscribed *قي اصول التعبير*. But we have no evidence that this work existed at the time of Mohamammad, and it is probable that it is not the one alluded to in paras. 24 and 29.

The book of Daniel which was extant in those early ages contained prophecies and also an apocryphical history, and was known to 'Abd Allah b. Sallám. This man as it has been stated in p. 213 of this volume was a friend of Mohamammad, and died thirty-three years after him. He had a good knowledge of the scripture and also of several apocrypha. Among the latter was a work which is called in Hebrew *חשין עילם* in Syriac *جفت عيلم* and in Greek chronicon, and it contained an account of the festivals *اعياد* and a great deal of historical information *وهو كتاب قد جمعت فيه تواريخ واخبار من اخبار الامم والاقوات كثيرة*. Of this work Ibn Monajjim has preserved numerous extracts.

'Abd Allah b. Sallám it seems recast the book of Daniel. D'Herbelot (under Daniel, again under Odhmah and Abdalla), says :

Abdalla est aussi auteur d'*Odhamat* (?) *almanqûl'an Daniâl alnabi*, qui est un ouvrage tiré d'un livre Apocryphe du prophète Daniel, dans lequel les livres d'Adam sont cités sur l'histoire de la création du monde. Cet ouvrage de Ben Salam se trouve dans la Bibl. du Roy, n. 410.

Next we find an account of the book of Daniel in Leutprand, who in A. D. 968 went as ambassador of the emperor Otto to Nicephorus at Constantinople. He says (*apud* Fabricium, Cod. Apoc. Vet. Test. I. p. 1136): Sed cur Imp. Nicephorus Phocas exercitum nunc in Assyrios duxerit quæso advertite. Habent Græci et Saraceni libros quos *ὄρασεις*, sive visiones Danielis vocant, ego autem Sybyllinos, in quibus scriptum reperitur, quot annos Imperator quisque vivat, quæ sunt futura eo imperante tempora, pax aut simulas, secundæ Saracenorum res aut adversæ. Legitur itaquam, hujus Nicephori temporibus, Assyrios Græcis non posse resistere, huncque septennio tantum vivere.

It appears that on the strength of this prophecy the enlightened monarch went to war.

Zonaras mentions that the Khalif Mo'awiyah, captured the book of Daniel, which along with the scripture had been translated, by order of Ptolemy from Hebrew into Greek, and had it translated into Arabic. Later in A. D. 1145 it was re-translated from Arabic into Greek by Alexius Byzantius, a prisoner of war, who knew well Greek and Arabic. This seems to be another book than the prophecies of which we are speaking, because of the prophecies there existed an Arabic version before Mo'awiyah, and the Greek emperor was guided by them two hundred years before Alexius. Zonaras probably means the work on the explanation of dreams.

It would be important to know from what language the prophecies of Daniel were translated into Arabic. It is most probable that they were translated from the Syriac. In the Imperial library of Vienna (see Lambecius, Lib. I. p. 171) exists in Syriac a "Prognosticon singulorum annorum" ascribed to Daniel. It would be of great importance to know whether its contents coincide with the *Odhamat* of 'Abd Allah b. Sallâm, and it is to be hoped that the great Syriac scholar, J. Kœrle, will give to the public a notice of the former and the learned and energetic De Fréméry of the latter work. The

dialect in which the Arabic text is written, and the style of the book might throw light on the literary history of that period.

As a farther contribution towards the literary history of the time of Mohámmad, I add here two passages on the *Çohof* Ibráhyim or Rolls of Abraham, which are referred to in the Qorân, as books which were well known to the Arabs.

Ibn Monajjim who wrote in A. H. 131, says in p. 28 of his history, after enumerating the canonical works of the Bible, that the Jews have some books which are not recognized by the Christians, and the first of these books which he mentions is كتاب الاشمعت وهو صحف ابراهيم وموسى صلى الله عليهما وهو كتاب يجمع الاخبار من ادم الى موسى على طريق التنزيل والامر والنهي. "The book al-Ashma'at. This is the 'Rolls of Abraham and Moses.' It is a work which contains the history from Adam to Moses in the form of divine revelations, commands and prohibitions."

In page 52 he says: هذا قول المجوس في كيمرث وولده وملكهم واما ما وجد في كتب اهل الكتاب مثل شمعتا (sic) وهو كتاب في ايدي اليهود دون النصراني يسمى بصحف ابراهيم وموسى وفيه ما انزل على ادم وشيث وادريس وابراهيم وموسى من الصحف فان ذلك جمع موسى

"This is the account which the Magi give of their first king, Kayumarth, and his descendants and their reigns. The account which those who believe in the Bible give of him in their books [follows below]. Such books are the Shama'atá. This is a work which is recognized by the Jews but not by the Christians. It is called the Rolls (or Volumes) of Ibráhyim and Moses, and it consists of those Rolls (or Volumes) which have been sent down from heaven to Adam, Seth, Enoch, Abraham and Moses, and have been collected by the last named prophet."

Shama'atá, I believe is a mistake in this passage for Ashma'at, because according to a statement in p. 28 Shama'atá is the name of a collection of traditions of the Rabbins.

There is an Arabic work in my possession which bears the title of صحف ابراهيم وموسى, but it is evidently not the same which is mentioned by Ibn Monajjim.

So much on books and writing among the Christian Arabs at and before the time of the prophet. We will now turn our attention to his followers.

That writing was but little employed among the early Moslems for preserving records, is best shown by the specimens which are enumerated above in paras. 44-47, and also by the sayings of Mo-hammad recorded in paras. 37-42. It is, however, not to be supposed that the author should have possessed information of all the writings which then existed.

With 'Omar's conquests of Syria, Egypt and Persia, begins a new period in Mohamman history. The Arab residing in the palaces of Damascus and Ctesiphon would soon be quite a different man from him who lived in a tent in the desert, or in a hovel at Makkah or Madynah.

The Khalif 'Omar, the great Representative of the barbarians of Arabia, the founder of Musalman empire, and the destroyer of the Alexandrian library, forcibly resisted the growth of a written literature. This fact is certain. He says in para. 24, that he had applied himself during the life-time of Mo-hammad to copying a book of the Jews or Christians, and was, as it might be expected, reprimanded for it. This statement which would imply that ever since he came to the Khalifat, he had an objection to writing, stands in contradiction with what is stated in paras. 23 and 26, where he says that he himself intended to collect the records of the sayings and actions of the prophet in writing. Yet both *hadythes* are undoubtedly genuine. Para. 23 gives us altogether the impression that his contemporaries were wishing to prepare a written code and written records, but that he was opposed to it, and with a view of the more completely putting down their effort, he professed to be of the same mind but anxious first to consult the will of God.

It was the policy of 'Omar to separate the Arabs from all other nations, and by preserving their savage bravery and keeping up their religious fanaticism to make them the rulers of the world. Writing and erudition did not suit his purpose. Not only because, as the poet says of such a tendency, *emolit mores nec sinit esse feros*, but also because he wished that the Arabic method of preserving their doctrines should be different from that of the Jews and Christians "who have been led into errors by their books." We find that the Moslems from the earliest times were most anxious to have institutions of their own, as is exemplified in the debate between

Mohammad and his friends on the best method of calling the faithful to prayers, also in the choice of their sabbath and in other practices.

Most of the older companions of Mohammad were either entirely illiterate or had no great taste for writing books, and even most of those who were learned in law and religion, followed the views of 'Omar and condemned writing. In proportion as the Moslems felt that they were the lords of the Jews and Christians, they affected to despise their institutions and took pride in keeping up their own.

Some of them only condemned the practice of preserving and propagating knowledge by writing, whilst others went a step further and even disdained to take notes for assisting memory.

There were nevertheless some men even among the theologists and traditionists, who from the earliest time wrote down the information which they wished to preserve. The most important among these are 'Abd Allah b. 'Amr, Anas b. Málík and Ibn Abbás, who were companions of the prophet, and preserved more records of him than any one else. The *hadythes* of 'Abd Allah and Ibn 'Abbas were preserved by their families in writing ; regarding the latter, para. 89 is particularly important. (See besides the preceding passages, also p. 212 *suprà*).

From several of the preceding paras. it appears that at the court of the Omayyides, *hadythes* were taken down and though in some instances they were again expunged at the desire of the informants, it is to be supposed, to judge from these very instances (which alone excited interest, because they were extraordinary), that in most cases they were preserved. The Omayyides also attended to the introduction of other sciences into the Arabic language. It is said in the *Fihrist* *مصطفى القديم ونقل لـخالد بن يزيد بن معاوية* *كتب الصنعة وغيرها* Khálid, died in A. H. 82, and we may therefore suppose that these translations were made about the middle of the first century.

Soon after the middle of the first century—say about A. H. 60, when the older companions had died away, and men who had been brought up in large and flourishing towns took their place, the question—whether it was lawful to write down *hadythes* was much agitated, and it appears that the *hadythes* recorded in paras. 1 to 4 and 37

to 42 were then first collected, (and some of them perhaps invented). Opinions were divided on the subject, but it seems that about A. H. 70, the views of those who were against writing, got the upper hand.* But the necessity of having written records was more and more felt, and it appears that several men (among them 'Orwah who died about A. H. 90,) repented towards the end of their days of having destroyed their writings, and whilst some of the traditionists continued even during the second century to resist the progress of a written literature, others—and among them the Khalif 'Omar b. 'Abd al'Azyz—made great efforts to preserve *hadythes* in books. In the third century the question whether it was lawful to take *hadythes* to paper was purely theoretical. Writing was so common that whatever evidence there might have been of its not being lawful, nothing could have put it down. The unfortunate system, however, of giving the *Isnáds* instead of referring to books, and of considering every *hadyth* as a whole, continued and did much mischief and causes great confusion, as I have shown in former articles.

Entomological Papers—being descriptions of new Ceylon Coleoptera with such observations on their habits as appear in any way interesting.—By JOHN NIETNER, Colombo, Ceylon.

Introductory Note—on the publication of new species under disadvantages such as describing entomologists necessarily labour under, in countries remote from the European centres of science.

I little doubt that the following descriptions of new Coleoptera will meet with anything but approbation from the entomological world at home. As, however, in spite of this anticipation of an ungracious reception I shall hardly desist from my purpose of publishing such descriptions hereafter, I may as well try to vindicate this measure by setting forth the reasons which induce me to consider

* They may have been actuated by the spirit of 'Omar and by conscientious motives but from para. 8 and also partly from para. 12 we see that these old men who had seen the prophet were partly influenced by a childish desire to have the monopoly of information regarding him. Childish objects of this description are conspicuous throughout all the sciences of *hadyth*.

the difficulties which beset the path of the entomological author in this country as not insurmountable.

The objections raised against me will be these: considering the state the entomological literature is still in, that is to say, considering that it has not, generally speaking, been condensed into a certain limited and obtainable number of volumes as is the case in the higher branches of Zoology and Botany, that on the contrary the bulk of it consists of fragments which float without order in the misty and unfathomable ocean of scientific journals—it is next to impossible that an individual entomologist abroad should surround himself with this shapeless mass of learning and keep himself by this or other means so well informed of the details of the actual progress of the science as not to be exposed to mistakes of one kind or another, but more especially to creating synonymy in attempting to work independently. It will further be said against me that not having the facilities and the wholesome checks which arise from the diligent use of extensive and well named collections, not even having the gratification of a brother entomologist's views and opinions on doubtful cases, it will be impossible even to determine whether an insect be new or not; and from these reasons (the résumé will be) entomologists abroad should confine themselves to collecting and observing the habits of the objects of their attention, but they should never go to print with matters on which it is an impossibility for the ablest among them to be quite competent. These arguments are unfortunately too true, but still I think admit of being mitigated sufficiently to lead us to final conclusions less disheartening than the above.

First of all every entomologist gives the preference to a certain order of insects—say Coleoptera—and in this even, in almost all cases, to one or two particular families. In studying for the publication of new species under the disadvantages just mentioned, he will confine himself to this order or perhaps family. Now, although as objected above, the information existing on this particular branch is for the most part fragmentary, still there are certain families on which it has received a tangible shape from having been condensed by able hands: Burmeister's Lamellicornia, Dejean's Carabidæ, Erichson's Staphylinidæ, Schoenherr's Curculionidæ, Boheman's Cassidæ, Westwood's

Paussidæ, etc. as well as the latter author's general work on the families, and Lacordaire's on the genera, Coleopterorum, diligently consulted, go as guides a long way, and should, although some of them have by the rapid progress of the science grown rather antiquated, guard against a number of mistakes of a systematic nature.—As to whether a beetle be new or not, I admit that in forming an opinion on this question the entomologist situated as above will have quite as much to be guided by a certain tact (not clearly definable but understood by scientific men) as by anything else, and I am forced to concede that under any circumstances almost it is totally impossible to arrive at an *indisputable certainty* either the one way or the other. This, however, by no means excludes the possibility of his forming an opinion with so much precision as to enable him to pronounce on the matter with a very *high degree of confidence and all probability* in his favour. In attempting to come to a decision on this difficult point he will receive a first superficial idea from careful reflection on certain accidental circumstances such as size, scarcity, or other peculiarities of the insect in question. This idea, which ever way it may incline, will then either gain or lose in strength by diligent reference to his library, until at length, with a certain amount of tact and judgment, he will arrive at a result, which under such circumstances must carry much weight with it. I shall illustrate this case by an example: If for instance after collecting five years in Ceylon generally and in the Colombo District more especially, I find at the latter place an insect—say the *Chlænus* 5 *maculatus* described below—for the first time—am I not entitled to consider it as very scarce? If, on consulting my library, I discover nothing which can possibly refer to it (finding that not a single *Chlænus* is marked as occurring in Ceylon), are not the chances greatly in favour of its being an undescribed species? If again I collect beetles as small and inconspicuous as the *Trichopteryx* described below, and consider at the same time that, although they are in certain localities of common occurrence, no professional Coleopterologist has ever collected before me in this Island; if moreover again my library offers nothing that could possibly refer to them individually (there being hardly an Asiatic species mentioned),—am I not under these circumstances justified in consider-

ing them as undescribed? Decidedly I am. Circumstances like these would indeed be altogether conclusive, if there was not a chance of the beetle's occurring in some neighbouring country and its having thence found its way into the normal collections of Europe. The possibility of such being the case enhances the difficulties of the case of course very materially, but I do not see why they should not, to a certain degree, be overcome by the same or similar means as those cited for overcoming them in one particular country.

I think I have said enough to show that the disadvantages the entomologist encounters here, or in other places similarly situated, in *conscientiously* attempting to publish new species, may (his principal assistance being perseverance, a good library and tact—entomological instinct I am almost tempted to call it) be overcome—I am far from saying *entirely*—but so far as not to expose him, from *want* of resources in the execution of his plan, to *more mistakes* than entomologists expose themselves to under more favourable circumstances by *neglecting them*.—But I am not satisfied with obtaining the simple grant of permission to describe on the spot a part of what he collects—I claim more for the entomologist abroad: I wish to show that he should naturally be expected—nay desired—to do so, for although he labours under distressing disadvantages in some respects, he happily enjoys a proportionate share of advantages in others.—It is unsatisfactory in the extreme for an enthusiastic entomologist to be obliged to let his collections go out of his own hands, and see others reap the honours from them, which are to be reaped on such occasions, or perhaps see as it were a gulf close over them, hear no more of them, and find himself forgotten. For what is a mere collector? Let him display as much industry as possible, he is hardly looked upon as an entomologist, certainly, as long as he is prevented from publishing anything, not as a scientific one. Now, if such a man merely desists from publishing the fruits of his researches from want of resources to assist him to go creditably through such a task, if he suffers his collections to go out of his hands, because he is too true a lover of science not to see the credit, in a great measure due to himself, reaped rather by another than to hoard up his entomological treasures, a useless heap, eventually to be destroyed by moths and time—I say, that a man who acts upon

principles like these finds himself not seldom disheartened in the prosecution of his studies under difficulties such as I have set forth. If, however, as I have endeavoured to point out, these difficulties can be overcome to a very considerable extent, is anything more natural but that he should be the herald of his discoveries himself? Could anything be more unkind and ungenerous on the part of his scientific brethren at home, than to oppose and discourage him by their disapprobation? I might enlarge on this subject, which has been a sore one with me for a long time, to a great extent, but I think this is sufficient to direct the reader into the train of my ideas and to enable him to follow it up.

I hasten therefore to conclude. As mentioned above, the tropical entomologist has a proportionate share of advantages to balance what falls to his lot of the contrary; one of these advantages which he has over his brethren at home is that he has an opportunity of seeing and studying alive, what can at home only be examined in a state differing more or less from that of life. Therefore, if he is *enabled* and *expected* to describe new species, it is moreover *highly desirable*, for the sake of the promulgation of *sound* information, that he should do so; that he should avail himself of this, his principal advantage, and describe fresh from nature as many of his favourites and their habits as possible; and discouraging him in such an undertaking, on any of the above grounds, would be discouraging the progress of science in general.

FAM. CARABIDÆ, TRIB. CHLÆNIDÆ.

1. *Chlænium Ceylanicus*. N.

C. subellipticus, subconvexus, glaberrimus, nitidus; supra brunneo-æneus, capite, thoracis elytrorumque margine aureo-viridibus; subtus piceus, margine, pedibus oreque dilute castaneis. Long. corp. $5\frac{3}{4}$ lin.

Caput ante oculos 2-impressum. Antennæ art. 3^o quarto paulo longiore. Mentum dente magno excavato. Thorax subquadratus, latitudine parum longior, obsolete punctulatus, antice subconvexus, lateribus deflexus postice, depressus, planus, 2-impressus. Elytra subtiliter striato-punctata, obsoletissime punctulata.

In stagnorum ripis inter arundines habitat, in prov. occid. et merid. infrequenter legi. Per occasionem nocte ad lumen advolat.

A handsome and interesting species, distinguished as well by its general shape, which is more elliptic and convex than usual, as by its polished surface. The head is oblong and, with the exception of the mouth the parts of which are of a deep brown, of a bright metallic green divided longitudinally by a streak of copper color. The thorax is rather longer than broad, round in front and flat behind and finely punctured all over; it is of a brownish metallic color bordered laterally with bright green. The elytra are of the same color as the thorax, the same bright green stripe running along the sides. The margin, properly speaking, is deep brown. They are impressed with rows of fine indistinct punctures and with the usual series of larger setigerous ones within the margin. They are rather narrowed near the apex.

The female, in addition to having the anterior tarsi not dilated, has the basal impression of the thorax of a somewhat semicircular shape, and is broader in the body than the male.

2. *Chlænius 5-maculatus*. N.

C. præcedente major, minus convexus, latior, rugosus, pubescens; supra obscure nigro-viridis, capite viridi-æneo, nitente, glabro, elytris maculis 5-flavis; subtus piceus, pedibus, elytrorum margine antennisque flavis, ore thoracisque margine magis minusve brunneis. Long. corp. $6\frac{1}{2}$ lin.

Caput ante oculos leviter 2-impressum, punctulatum. Antennæ art. 3^o quarto plus sesqui longiore. Thorax subquadrato-rotundatus, latitudine haud brevior, dorso planus, ad basin 2-impressus, rugosus, pilosus. Elytra subdepressa, subtiliter striata, rugosa, pilosa, maculis 2 humeralibus, 2 intermediis, 1 apicali flavis ornata.

Specimen singulum m. in lacus Colombensis ripis sub graminibus putrescentibus legi.

Not less distinguished than the former, especially by the rounded shape of the thorax and the 5 yellowish spots with which the elytra are adorned. These are arranged in the following manner: 2 small ones at the shoulders, 2 large transverse ones at the middle stretching from the external margin towards the suture reaching, however, but little more than half across, 1 at the apex; this is of the shape of a hammer, and half in one and half in the other elytron. The palpi appear to me longer and more markedly elbowed at the joints

than is usual with insects of this genus, the last joint is deeply excavated at the tip. The thorax is of sub-orbicular form, the back and hind part are flat, the sides slightly depressed, the margin sharp, the basal impressions very near the angles; it is, as are also the elytra, rough and finally pubescent, the striæ of the latter being thereby rendered obsolete. Legs of m. stout, anterior tarsi strongly dilated.

3. *Chlænius pulcher*. N.

C. elongatus, subconvexus, subglabratus, æneo-viridis, elytris obscurioribus, limbo pedibusque flavis, subtus piceus. Long. corp. $6\frac{3}{4}$ lin.

Caput oblongum nitidissimum, ante oculos 2-impressum. Mentum dente fortiter excavato. Antennæ art. 3^o quarto sesqui longiore. Thorax oblongus basin versus angustatus, parce punctulatus, antice lateribus deflexus, postice dorsoque planus, basi 2-impressus. Elytra striata, ad strias, præcipue apicem versus, subtilissime pilosa, flavo-marginata. Pedes flavi, spinulis castaneis. Abdomen flavo-marginatum.

Specimen singulum m. in ripis Maha-Oyæ fluminis prope Negombo cepi.

Distinguished by its elongate shape. The head is of a bright green color with the labrum and the mandibles of a deep, and the antennæ and palpi of a light brown, the latter being darkened towards the end. The thorax is of the same color as the head reflecting a copper hue from the back, its anterior angles are obtuse, the basal ones being right. The elytra are of the same greenish copper color but darker, they are impressed with longitudinal lines, which are bordered on each side by a row of minute hairs. They as well as the abdomen have yellowish margin.

4. *Chlænius cupricollis*. N.

C. subconvexus, subglabratus, capite thoraceque cupreis, elytris nigro-æneis, limbo pedibusque flavis, subtus piceus. Long. corp. m. $5\frac{3}{4}$ f. $6\frac{1}{4}$ lin.

Præcedenti affinis. Caput ante oculos indistincte 2-impressum. Thorax ut in præcedente sed miuor, antice lateribus magis deflexus, linea media impressionibusque basalibus longitudinalibus, præcipue

in f., profundioribus. Pedes flavi, trochanteribus spinulisque castaneis. Elytra præcedentis.

In prov. occid. flaminum lacuumque ripis infrequenter legi.

Allied to the former, but easily distinguished by size, color and sculpture of the thorax. The male is shorter and the female plumper than the former. The thorax is smaller and, as is also the head, of a bright copper color with greenish sides, its impressions, especially in the female, are deeper and its anterior part laterally more deflexed. Moreover the yellowish margin of the abdomen is wanting and the tooth of the mentum is not excavated. The elytra, antennæ and palpi are, making allowances for size, etc., those of the former.

5. *Chlænius rugulosus*. N.

C. subconvexus, subglabratus, thorace occipiteque rugulosis cupreis, elytris nigro-viridibus, pedibus, elytrorum limbo lunulisque apicalibus flavis, subtus piceus, abdomine apice margineque flavis. Long. corp. $6\frac{1}{4}$ lin.

Caput fronte 2-impressum, subtilissime longitudinaliter rugulosum. Menti dens laciniis extus rotundatis. Thorax lateribus rotundatus, deflexus, basi sat fortiter angustatus, obsolete 2-impressus, parce punctatus, subtiliter transversim rugulosus. Elytra ut in præcedente sed apice utrinque lunula flava signata, ad strias distinctius pilosa, his apicem versus per paria coeuntibus. Pectus abdomenque picea, hoc segmentis 2 ultimis, præcedente dimidio margineque flavis.

Specimen unicum f. in Ch. pulchri N. societate cepi.

Of the general appearance of the preceding two species. The head finely longitudinally, the thorax transversely rugose; the latter with rounded and deflexed sides. The mandibles are of deep brown, the palpi and antennæ of yellowish color darkened towards the tip. The lobes of the mentum tooth are externally rounded. The elytra are marked by two subapical spots of yellowish color and semi lunar shape (the back of the lunules being turned towards the suture). The striæ verge near the apex by twos into each other. The abdomen is distinguished by having a yellow margin and apex.

TRIB. SCARITIDÆ.

6. *Scarites minor*. N.

S. elongatus, niger, nitidus, subtus nigro piceus, pedibus piceis, tarsis, antennis, palpisque castaneis. Long. corp. 5 lin. lat. $1\frac{1}{2}$ lin.

Caput subquadratum, ante oculos 2-impressum, pone irregulariter sulcatulum. Mentum rugosum, medio costatum, lateribus utrinque profunde uni-sulcatum, lobis obtusis, dente forti, lobis paulo brevior. Maxillæ validæ, breves, apice extus leviter arcuatæ et excavatæ, subacuminatæ. Mandibulæ validæ, inter medium et basin fortiter dilatatæ, obtuse dentatæ, dextera dente obtuso subapicali, supra subtusque longitudinaliter sulcatæ. Antennæ art. 1^o sequentium trium—2^o tertii prope longitudine. Thorax oblongo-quadratus, angulis anterioribus obtusis, posterioribus oblique truncatis, anguste marginatus. Elytra thoracis capitisque prope longitudine, striata, ante medium ad striam 2^m uni—apicem versus ad striam 3^m 2-punctata, punctis piliferis, basi granulata, angulis oblique-truncatis, anguste marginata. Pedes anteriores tibiis apice extus 5 dentatis, dentibus 2 ultimis parvis, omnes tarsis subtus leviter excavatis.

In prov. occid. arenis humidis sub vegetabilibus putrescentibus specimina nonnulla legi.

Scarce; but little distinguished excepting by its size, for which reason, a lengthened description becomes necessary. The head is subquadrate, in front with 2 deep longitudinal impressions behind the eyes finely sulcated. The labrum is of the usual shape, the eyes are not very prominent; the antennæ are of about the same length as the head, the first joint is about as long as the 3 following together, the 2nd, which is generally longer than the 3rd, is in this case of the same length, joints 1—4 are naked, 5—11 pilose, increasing towards the tip gradually in size and thickness, taking at the same time a subquadratic and depressed shape. The mandibles are strong, much dilated and dentated from before the middle to the base, the right one having an additional subapical tooth. The maxillæ also are strong, but slightly bent at the apex, where they are also slightly excavated. The labial palpi have the last joint longer than the 3rd, elongated and elliptic. The thorax is oblong with the basal angles obliquely truncated. The elytra are oval, striated, granulated at the base, and have, as has also the thorax, a

narrow margin. The anterior tarsi are furnished externally with 5 teeth, the 2 last ones of which, however, are very small, the posterior legs are similarly provided, but the teeth are indistinct. The joints of the tarsi are slightly excavated below. The sides of the body below are rugose.

7. *Clivina rugosifrons*. N.

C. ferruginea, capite thorace abdomineque piceis. Long. corp. $4\frac{1}{2}$ lin. lat. $1\frac{1}{3}$ lin.

Caput rugosum, inter oculos elevatum, elevatione plana antice profunde 1-impressa. Mentum lobis subtiliter sulcatis. Antennæ robustæ, thoracis medium vix attingentes, art. ultimo elongato, penultimo—, art. 2^o tertio sesqui longiore. Thorax subquadratus, antice parum angustatus, elytrorum latitudine, subtus parce punctatus, prosterno sulcato. Elytra striata, in striis punctata. Pedes tibiis anterioribus apice extus 4 dentatis, subtus excavatis, tibiis reliquis fortiter spinosis, tarsis articulis margine apicali setoso.

In prov. occid. sub vegetabilibus putrescentibus infrequentissime legi.

A large and distinguished species. The head is very rugose, the clypeus is contracted behind the apical angles and then produced again into another pair of angles. The labrum is transverse, slightly sinuate in front, with the angles rounded and setose. The mentum is quadrate, the lobes rounded at the apex and slightly sulcated, the tooth is strong, of equal length with the lobes and of the typical spear-headed form. The ligula has the apical angle much elongated, terminating in a membranaceous bristle which is bifurcate at the tip. The maxillary palpi have the last joint elongate, cylindrico-conic; that of the labial ones is still more elongate, elliptic. The antennæ have the basal joints elongate, those towards the tip rounded. They and the legs are hairy, otherwise the insect is of a bright polished surface.

8. *Clivina elongatula*. N.

C. elongata, subdepressa, supra nigro-picea, subtus picea, pedibus elytrorumque margine castaneis, antennis oreque dilutioribus. Long. corp. vix 3 lin. lat. $\frac{3}{4}$ lin.

Caput triangulare, subtiliter punctato-rugosum. Palpi articulo ultimo apice leviter truncato. Thorax oblonge quadratus, ante

apicem leviter sinuosus, parce obsoleteque transversim strigosus. Elytra striata, in striis punctata, ad striam 3^m utrinque 4 punctata. Subtus parce punctata.

Ubi præcedentem specimen singulum legi.

I have not dissected the labium of this species, which, however, is at once recognised by its depressed and, in proportion to its width, very long shape. The labrum, antennæ and legs are so much like those of the former that they need no further description. The bristle of the ligula appears simple.

9. *Olivina maculata*. N.

C. picea, elytris ferrugineis infra medium macula nigra indistincte ornatis, pedibus intermed. et post. oreque brunneo-testaceis, pedibus ant. antennisque obscurioribus. Long. corp. 2 lin.

Caput oblonge quadratum, rugosum, costis 5 magis minusve interruptis ad marginem anteriorem dentibus 4 productis munitum. Palpi art. ultimo basi intus incrassato. Antennæ art. 2-3 subæqualibus. Thorax subquadratus leviter rotundatus. Elytra striata in striis profunde punctata.

Ubi præcedentes specimen singulum legi.

As distinguished as the preceding two species. The palpi and the mentum appear to me of a somewhat extraordinary form. The last joint of the former is considerably more inflated at the base than in any other Ceylon species that has hitherto come under my notice, whilst the others are of a very curved appearance in both the maxillary and labial palpi. The emargination of the mentum would at first sight appear to be of simular shape. However, it is only the lower margin which has this form, the oblique truncature which forms the emargination being such as to give it that shape. The tooth is but of the typical shape standing on a level with the lower margin, it stands at a small angle with respect to the inclined plane formed by the rest of the truncature. The apical angles of the lobes are somewhat pyramidal, being formed by 3 sides. I have not dissected the labium, and therefore do not know whether the remaining parts exhibit any peculiarities. The insect is, however, easily distinguished by its general facies, which is rather like that of a *Dyschirius*, from which genus, however, the mentum alone is

sufficient to separate it. I may as well remark here that, although the Island is well supplied with Scarites and Clivinas, I have hitherto not discovered a single Dyschirius, a genus so well represented in Europe. Of the 3 Clivinas just described single specimens only have been in my possession for a considerable time. There are 3 or 4 more species met with about Colombo but these being of common occurrence I abstain from describing them here as they may possibly be amongst those described by Putzeys or others from the Indian continent.

FAM. RHIPIPHORIDES.

10. *Rhipiphorus tropicus*. N.

R. niger, nitidus, elytris albidis, nigro-maculatis, labro, palpis, antennis (pectine nigrescente excepto), unguibusque brunneis, impresso-punctatus, punctis magnis sed non profundis, subtus suborbicularibus piliferis, supra oblongis lævibus. Long. corp. $2\frac{1}{2}$ lin. lat. ad humeros $\frac{3}{4}$ lin.

Caput oblongum, latitudine paulo longius, parte frontis inferiore dense profundeque punctata, vertice obtuse obconico glabro, nitidissimo, occipite piloso. Thorax elevatus, ad basin 2-impressus, medio angulo obtuso, apice excavato, glabro, inter elytra producto. Elytra ad suturam utrinque stria lata brunnea punctata impressa, acuminata, apice dehiscentia, albida vel subhyalina, apicibus, medio utrinque et ad basin nigro-maculata. Alæ apice fuscae. Pedes tarsis anticis art. 2-4. unguibusque bifidis omnibus brunneis, tarsis subtus setosis, anticis, art. 2—3 primoque apice, subtiliter sericeo-penicillatis.

Specimen singulum m. prope Colombo in floribus legi. De metamorphosi adhuc nihil constat.

The head is rather long in proportion to its width, the occiput is narrowed, short obconic. The hind part of the thorax is elevated above the elytra. The central part of its base is prolonged between the elytra in an obtuse angle, the apex of which is abruptly truncated, excavated and polished. The labrum is hairy and the ungues of the tarsi bifid as usual.

The tibiæ of the interior legs are furnished at the apex with one, those of the 4 posterior legs with two spurs. The anterior tarsi

have joints 2-4 brown. The tarsi are setose below joints 2-3, the apex of the first of the anterior ones wearing fine yellowish silky brushes instead.

All over the island the Rhipiphorides and Mordellina appear to be very scarce, with the exception of 1 or 2 species of Anaspis which are not seldom taken in flowers. Still I recollect having met with about 7 species, including 2 large Mordellas, which, however, I have not been fortunate enough to catch as yet.

FAM. STAPHYLINID. TRIB. PINOPHILINI.

11. *Edichirus alatus*. N.

Æ. alatus, setosus, nitidus, rufo-testaceus, thorace dilutiore, capite, elytris abdominisque segmentis 3 ultimis nigris; elytris apice 2-maculatis, maculis rufo testaceis; pedibus flavis, femoribus apice tibiisque basi nigrescentibus; antennis palpisque maxill. basi obscuris, apice testaceis, reliquis oris partibus rufo-piceis. Long. corp. $3 \frac{1}{6}$ lin.

Æ. Pæderino Er. simillimus, præter colorum distributionem differt tamen *alis*, elytrorum sculptura, antennarumque articulo ultimo. Antennæ art. ultimo penultimo æquali nisi paulo minore, apice fortiter *truncato* leviterque excavato. Thorax Æ. Pæderini, dorso punctis biseriatim impressus, serie interna vel centrali elliptica punctis minoribus magis inter se approximatis, externa vel submarginali punctis magnis distantibus. Elytra oblonge subquadrata, infra medium rotundata, thorace *longiora* et fere duplo ampliora (utrumque elytron thoracis fere magnitudine), basi parte thoracis adjacente *duplo*—infra medium illius latitudine antica plus tertia parte latiora. Os, pedes et abdomen Æ. Pæderimi.

Pæderorum more victitare videtur; in eorum societate in lacus Colombensis ripis infrequentissime legi; illis minus gracilis atque minus agilis.

I have not had an opportunity of examining specimens of either of the 3 Æ. dichiri hitherto described. However, I have before me Erichson's figure and description of the Sicilian Æ. Pæderinus with which I find my species strongly to agree.

It differs, however from the former materially in the following 3 points, viz. the wings, the sculpture of the wing-covers and the last

antennal joint.—The fact that this species has wings would render an alteration in Erichson's diagnosis of the genus necessary it being characterized therein as apterous. The elytra are not so much contracted and rounded at the base, and, being longer than the thorax, have therefore a more oblong, subquadratic appearance. As in the above typical species they are, however, rounded at the sides and broadest a little below the middle. They are about twice as broad at the base as the adjoining part of the thorax and in their broadest part rather more than a third wider than the broadest part of the thorax. The third point in which the two species differ is the last joint of the antennæ which in this case is strongly truncated at the tip and slightly excavated. They are further distinguished by the distribution of the colors, my species being of dark yellowish red, thorax lighter, head, elytra and 3 last abdominal segments black, elytra with 2 reddish spots at the apex, legs yellowish, at the apex of the femora and base of the tibiæ blackish, the mouth is brown, the maxill. palpi yellowish with the 3 first joints dark at the base, the antennæ have the 6 basal joints dark excepting at the apex, where they, as well as the 5 remaining ones, are yellowish. In all other points I find the insect to agree entirely with the typical *C. Pæderinus*: the palpi, legs and anal segment of the abdomen are of the same structure, the hairy vestiture is exactly the same in the different parts of the body of my species as it is in the corresponding ones of Erichson's.

It is perhaps wrong in me to describe an isolated species of this extensive and difficult family. However, the gen. *Cedichirus* is one so extraordinary that I am sure it will be noticed wherever the description of a new species of it may be found, be it by itself or amongst those of other Staphylinidæ. The case would be different if the object of the description were a *Homalota* or the like.

Correspondence relating to the Exploration of the ruins of Sarnath.

—Communicated by the GOVERNMENT OF THE N. W. P.

To R. C. OLDFIELD, Esquire,

Assistant Secretary to Government N. W. P. Agra.

Benares, the 28th June, 1856.

SIR,—In reply to your letter No. 3227, dated 19th instant, calling for report on the further exploration of the ruins of Sarnath, I have the honor to submit a letter No. 1, of 25th idem, and its annexures from Dr. Butter, superintending Surgeon of the Division, on the subject.

I have called upon the Executive Officer, Captain Rigby, to report what is possible to be done to preserve the tope, and the approximate expense. A large portion of the carved stone facing, is quite detached from the brickwork body of the building, and is so much bulged out, that it *must* come down.

I have, &c.

(Signed) H. TUCKER, *Commissioner.*

(No. 1).

To H. C. TUCKER, Esquire, Commissioner, 5th Division.

Benares, 25th June, 1856.

SIR,—With reference to your docket, No. 61, dated yesterday, on a copy of letter No. 3227, dated the 9th instant, from the Assistant Secretary to Government, to your address, inquiring what had been done since the issue of the orders of 12th December last, No. 255 A., relative to the further exploration of the ruins of Sarnath, I have the honor to submit the following report.

I believe that Professor Hall reported generally regarding the nature of the constructions laid open by the prisoners working under his orders. The buildings appeared to me to possess very little interest, being characterized, in some parts, only by a singular disregard of the use of the plummet, square and level. These walls are built neither perpendicularly nor horizontally straight, nor at accurate right angles.

One of the structures laid open had been more carefully raised ; a series of rectangular cells, without any lateral opening, possibly

intended for granaries, and at the same time so solidly built as to serve the purpose of solid foundations for the monastery of which they probably formed a part.

Another structure is a well, surrounded by a rectangular platform, edged with rough upright stones, probably the supporters of a heavy roof. There are indications of the well having been brought into use, after the destruction of the surrounding buildings, by laying a long stone across a portion of its broken edge. The masonry of the well is very irregular.

As I occupied the bungalow vacated by Mr. Hall before his departure from Benares, he left in the house all the objects, except a coin, that he had collected from his excavations, with a request that I should make a descriptive catalogue of them. This, when leisure served, I wrote, and sent to the Benares College Museum, along with all the objects described. A copy of the correspondence connected with this subject is annexed.

The coin abovementioned had previously been sent to me by Mr. Hall. It appeared a mass of verdigris, rubbed on one side until a figured white metallic surface appeared. By careful cleaning with dilute sulphuric acid, I removed the whole of the coating carbonate, which revealed a Greek profile, helmeted, with a peacock on the reverse; both early impressions, as the rough marks of the graving tool were distinctly transferred to the impression. It was sent to Mr. Thomas, who identified it as a coin of Buddha Gupta (circ. A. D. 400), and thence to the India House; it is not gold, as mentioned in the correspondence on the subject, but silver, with a considerable alloy of tin (judging from the colour,) and of copper (from its crust).

The burnt grain and masses of half-fused iron discovered by Mr. Hall, corroborate the conclusions drawn by previous explorers, that the monastery had been destroyed by fire.

Some of the small objects which I have particularly described, are interesting as relics of the useful arts of the period; especially the implements of the metal-workers, Nos. 42, 43, 45 to 50, 55 and 61. Some, again, look as if they had formed portions of the relic-casket and deposits of a great tope, small as the chances might be thought of recovering such minute objects from such an extensive

heap of ruins. This idea derives some countenance from Major Cunningham's statement (Preface to "Bhilsa Topes") of his belief that the principal object of his search, the relic-casket of the great tope of Sarnath, must have been discovered and destroyed by his workmen, during his absence on engineer-duty at Mirzapore.

This circumstance appears to show the necessity of constant personal supervision on the part of the officer charged with the explorations when any object of importance is expected to turn up. There is now no methodical searching for the axial deposit of an unexplored tope, as in Major Cunningham's Bhilsa undertakings. All that can be looked for, is an occasional deposit of interesting objects hid away at the time of the great political catastrophe, which stayed the sculptor's hand as he traced out and chiseled his designs on the smooth stone surface of the great tope, and which burnt down the monastery. Such a deposit may be lighted upon suddenly; and if including, as it probably may, some articles of intrinsic value, will be apt to disappear quickly, if discovered in the responsible officer's absence. It appears to me therefore, that the search can be prosecuted, with reasonable hope of success, in the cold weather only.

During the past cold season, I delayed from month to month the commencement of my own search, in the expectation that the improving health of the prisoners might enable the magistrate to afford me the aid of a small number of them in the work, which I hesitated to commence with hired labour only; and thus the favorable season passed away. At an early period of the ensuing cold weather it will be necessary to determine whether the Magistrate's aid is to be trusted to or not.

In the mean time, I beg strongly to recommend that measures be taken to avert the impending destruction of the tope itself. Large portions of the beautifully sculptured plinth, which rises to about three-fifths of the whole height of the building, have already shed their ornamented coating, which has been carried away and built, with dozens of statues, into the decaying foundations of the stone-bridge on the Burna. More of it now bulges out, detached from the central mass of the building, and ready to separate at the first shock of lightning or earthquake. If this be occasioned by

(besides the decay of the iron cramps) any unequal sinking of the foundation, as would appear from some vertical cracks, this evil is probably aggravated by the existence of two open galleries driven into the axis of the building, and by a well sunk in its centre, besides the shaft that is cut through the axis of the plinth and opens to the air near the summit of the plinth. These three openings should be walled up externally, so as to prevent the access of rain and drainage water. At present, the openings at the foundation are also a nursery for snakes. I saw a large cobra there this morning, and was informed that a man had died from the bite of one, two days before, and that they swarm round the tope. Trees, moreover, have grown on the summit, and will, in some severe storm, bring down part of it with them, and may throw down some of the ornamental casing in their fall. Some of the sculptured coat is already too much detached to admit any hope of its being successfully propped up; and the rest will follow its course, when its iron cramps shall have been corroded through. This mischief might perhaps be delayed by the application of a waterproof pointing to all the outer points, where they still appear sound. No cement had been used in the original construction; the stability of which had been entrusted to iron cramping and occasional string-courses of long projecting stones.

At all events, if the whole of the ornamental surface must scale off, its memory ought to be preserved by the photograph. All the designs are interesting; the geometrical form, their originality, and the flowered tracery from the boldness and beauty of its forms, and from the striking resemblance of its sun-flowers and foliage to the stems and raffles of the acanthus as treated by Grecian sculptors. The comparative flatness of large portions of the curved surface, from the greatness of its diameter, would render this an easy task. Photographs of the portions, where the workman had just traced or partially executed his work, will be highly prized, when Sarnath shall have become "heaps."

I have, &c.

(Sd.) D. BUTTER, *M. D. Superintending Surgeon.*

*To R. GRIFFITHS, Esquire,
Offg. Secy. Local Committee of Public Instruction, Benares.
Benares, 21st January, 1856.*

SIR,—At the request of the Commissioner of the Division, I beg the favor of your receiving charge of the articles enumerated in the accompanying list. They have been dug, under the superintendence of Professor Hall, from the ruins of Sarnath.

I have, &c.

(Sd.) D. BUTTER.

List of articles dug up at Sarnath, the ancient Buddhist holy ground near Benares, under the superintendence of Professor F. E. Hall, and left by him, on his departure for Ajmere in June, 1855, under my charge.

1. A disk of sandstone; 37 inches in diameter; sharp at the edge; convex on one face; slightly concave on the other, which has a raised ring $1\frac{1}{2}$ inch high round its centre, $9\frac{1}{2}$ inches in exterior and 4 inches in interior diameter, of rounded section: central thickness of the disk $1\frac{1}{2}$ inch: a portion (chord 19 inches) of the edge is broken off. [Fixed as an umbrella over statues of Buddha.]

2. A nether hand millstone; diameter 11 inches, sandstone.

3. A ditto, broken into two pieces, sandstone.

4. An upper millstone of unusual size and weight; height 6 inches; diameter 11 inches; sandstone.

5. A female head and throat, $3\frac{1}{2}$ inches high, broken off from a statuette, sandstone, of very marked character; hair parted in short bandeaux in the centre, ending in a series of short curls, with a short club of hair thrown back from the top of the head; high pencilled eyebrows; half closed eyelids; forehead and nose in one straight line; facial angle about 80° ; smiling expression of mouth; coloured part of the under lip marked in an exaggerated degree, almost like a protruded tongue; profile very Egyptian; throat marked with two folds; long earrings.

6. A torso; sandstone; 8 inches high; alto-relievo from throat to knee; proportions hermaphrodite; slightly draped; right hip thrown forward.

7. Alto-relievo fragment; sandstone; 5 inches long; a female right hand, holding a custard-apple; armlet bordered above with

kawris, and below with gems cut in facets, and with kawris alternately ; phalanges of the fingers not marked, but running into curves ; ring on the little finger.

8. Face, broken off, from upper lip to top of head ; $6\frac{1}{2}$ inches high, sandstone ; hair curled all over the forehead ; drooping eyelids ; forehead and nose in one line.

$8\frac{1}{2}$. Pinnade ; 6 inches high, with small figure of Buddha, cross-legged, in niche ; sandstone.

9. Female figure ; 5 inches high ; pierced alto-relievo ; head and right arm wanting ; draped closely ; supported by two smaller figures with massive locks ; steatite.

10. Hermaphrodite figure ; $3\frac{1}{2}$ inches high ; head backed by a large disk ; hair drawn up perpendicularly into a mass filleted across the centre horizontally ; pendent ornament on the forehead ; deficient below elbows and waist ; creases of the throat strongly marked ; earring touching the shoulders ; detached relievo ; greenstone.

11. Fragment of mica slate ; 2 inches long ; apparently a right hand holding a rounded object against the right side.

12. Terracotta ; 3 inches high ; female figure from waist to top of disk at back of head ; two holes through the disk, above the ears, apparently for fastening the alto-relievo to a flat surface ; grinning mouth ; large earrings ; prominent bust ; pendent necklace.

13. Red sandstone ; coarse basso-relievo ; epicene figure from hip upwards ; massive hair.

14. Mica-slate ; coarse alto-relievo head, with attached disk and raised right hand 4 inches long ; fillet across forehead, surmounted by a mass of hair.

15. A very clear impression, in red baked-clay, of a seal $\frac{7}{16}$ inch in diameter, with five lines of Sanscrit ; bears no mark of having been broken off from the protecting bell-shaped summit attached to Nos. 16 and 17.

16. A bell-shaped mass of burnt brick, $2\frac{1}{2}$ inches high, square projection at top ; supposed to contain an impression like No. 15.

17. A ditto ; $1\frac{3}{4}$ inches high.

18. An impression, in burnt brick, of a seal $1\frac{1}{4}$ inch in diameter, two lines of Sanscrit, surmounted by a lozenge-shaped device,

with deer salient as supporters. (Sarnath is by the Chinese travellers, called the Deer-park.)

19. A disk of red sandstone, 4 inches in diameter, $\frac{7}{16}$ inch high, attached to a portion of a broken slab.

20. A curry-stone (?); red sandstone; $6\frac{1}{2}$ inches long by 3 inches in diameter.

21. A fragment of a similar cylinder; 4 inches long; broken diametrically; greenstone.

22. Six vertebræ of a snake; recent; found in the well.

23. A small gharaful of kawris.

24. A mass of burnt rice.

25. A large quantity of iron, much rusted—some of the pieces being ringbolts, having portions of the rings attached by partial fusion; all appear to have been taken from a building destroyed by fire.

26. A broken crucible of circular section, five inches high, and three inches in the interior diameter; has been used, and has absorbed some metallic slag.

27. A fragment of a similar crucible, 4 inches high, bearing no marks of having been used.

28. A cupel, 1 inch in diameter; used.

29. A ditto used.

30. A ditto, being a mere hollow in a lump of clay, $1\frac{4}{16}$ inch high; not used.

31. A disk, 2 inches in diameter, of burnt clay, with five circular depressions, possibly intended for cupels.

32. A cupel of clay with a spout running horizontally from the bottom; length $2\frac{1}{4}$ inches.

33. Six perforated cylinders of burnt clay, from 3 to 4 inches long, with each a projecting disk across its length; supposed by Mr. Thomas to have been intended for blow-pipes, the projecting disk to protect the face of the artisan from the fire.

34. A piece of brass, $2 \times 2\frac{3}{4} \times \frac{1}{2}$ inch in measure, with a flange at one side, ornamented with beaded and flowered moulding.

35. Three earthen pots, 6 to 9 inches high, with mouths 3 to 5 inches in diameter; such as are now called gharas.

36. Nine ditto, 4 to 7 inches high, each provided, in addition to

the upper mouth, with a spout, an inch long, at one side. Similar vessels are still made at Benares. The spout of one is grotesquely moulded into the form of a non-descript animal's head.

37. Three spouts, 2 to $2\frac{1}{2}$ inches long, with everted edges, broken off the sides of pottery vessels.

38. A globular ewer of black pottery, $4\frac{1}{2}$ inches in diameter, with neck $1\frac{1}{2}$ inch long; flat-bottomed.

39. A ditto, $2\frac{1}{2}$ inches in diameter, bearing marks of having been heated over a fire.

40. Eight earthen cups, flat-bottomed, 3 to 5 inches in diameter.

40 $\frac{1}{2}$. One ditto with its two opposite edges doubled over; a lamp (?)

41. Four disks broken off, supposed blowpipes, like No. 33.

42. A flat disk-shaped shell, perforated in the centre with its edges turned down, the exterior apparently turned in a lathe, the interior (or upper) surface bearing the original polish, and having an ovoid, not a circular, horizontal section. Apparently fossilized.

43. A Chinese relic; being a piece of blue enamelled pottery, $2\frac{1}{4}$ inches long, ornamented on one side with straight and circular lines, and perforated with two holes, across one of which it is broken in two.

44. A cylinder, $2\frac{1}{4}$ inches long by $\frac{3}{10}$ inch in diameter, of greenish white steatite; can be used for writing with, on any dark stone.

45. A cylindroidal piece of onyx, black with white vein, 1 inch long, $\frac{1}{2}$ inch mean diameter, perforated along the axis, polished in the lathe.

46. An ovoid fragment of lilac-grey steatite, $3\frac{1}{4}$ inch in mean diameter, $\frac{1}{4}$ inch in mean thickness; its two wider surfaces concentric, apparently a portion of a cup about 7 inches in diameter; the concave surface bearing striated marks of a turning chisel carelessly held; the convex surface carefully turned and ornamented with a double graved line. Perhaps a Chinese relic.

47. A polished hemispherical gem, resembling prehnite, or excessively flawed emerald; apple green; smooth all over; $\frac{3}{10}$ inch in diameter.

48. A broccoli-brown agate bead, $\frac{4}{10}$ inch in diameter, pierced by two conoidal perforations meeting at minute apices obliquely.

49. An opalescent, transparent, skimmed-milk-white disk ; $\frac{6}{10}$ inch in diameter ; $\frac{1}{20}$ inch thick ; roughly ground at the edge, marked on one side with five projecting striæ, parallel, and either straight or portions of very large circles like those at the outside edge of a sheet of crown glass ; the other side is irregularly flat, with minute polished dimples, quite unlike modern glass.

50. A bulbous bit of copper, $1\frac{1}{4}$ inch long, $\frac{1}{4}$ inch in mean diameter ; clean on the surface, which is roughly finished with a file.

51. A cylinder of copper $\frac{9}{10}$ inch long, $\frac{8}{10}$ diameter, shaped with a hammer.

52. A ditto $\frac{8}{10}$ inch diameter, $\frac{1}{4}$ inch thick ; its weight not any aliquot part of No. 51.

53. A rough bit of copper, $\frac{6}{10}$ inch long.

54. Thirty smooth stones from the brook, red and grey sandstone, jasper, &c.

55. A disk of writing slate, $1\frac{1}{4}$ inch diameter, $\frac{8}{10}$ inch thick.

56. Fifty-five bits of rounded nodular kankur, apparently kept as curiosities.

57. Thirty-five earthen beads, $\frac{8}{10}$ to $1\frac{1}{10}$ inch in diameter.

58. Thirty-two ditto, about $\frac{4}{10}$ inch in diameter.

59. Five lumps of burnt brick, moulded by the hand into cones from 3 to 4 inches in diameter ; to be used as mullers ?

60. A piece of black (pottery ?) $\frac{7}{10}$ inch square and $\frac{1}{2}$ inch high, indented on one side with a central circular hollow $\frac{7}{10}$ inch in diameter, and $\frac{1}{10}$ inch deep ; a mould for blanks of coins ?

61. A cylinder of red jasper, $\frac{8}{10}$ inch in diameter, $\frac{1}{2}$ inch high.

62. A small iron spear-head.

63. A square iron head for a wooden mace.

64. An iron axe-head.

65. An iron adze, or hoe-head.

(Sd.) D. BUTTER.

To H. C. TUCKER, Esquire, Commissioner of Benares.

Dated, Nynsee Tal, the 18th July, 1856.

SIR,—I am directed to acknowledge the receipt of your letter No. 30, of the 28th ult., forwarding a letter and its annexure from Dr. Butter, on the subject of the exploration of the ruins of Sarnath, conducted during the past season, under his supervision.

The Lieut.-Governor is glad to learn that so many of the interesting objects which have been hitherto discovered during the progress of the excavations, have been deposited, with a descriptive list in the Museum of the Benares College.

The silver coin, with the Greek profile, which is referred to as a coin of Buddha Gupta, and of about the era 400 A. D., has been properly transferred to the Museum of the E. India House.

The Lieut.-Governor quite agrees in the views of Dr. Butter, as regards the prosecution of future explorations under his own immediate and close personal supervision. The work need not however be dependent upon the prison labour which the Magistrate may be able to place at his disposal, as a moderate monthly contingent charge will readily be sanctioned for this object.

The Lieut.-Governor awaits the report which you have called for from the Executive Engineer as to the measures which it may be practicable to adopt for preserving the Tope from further dilapidation by decay.

The Lieut.-Governor would very much encourage the taking of photographic delineations of all parts of the remains in their present condition, so as to preserve a correct record of its general appearance, and of the details of the ornamental sculpture and tracery; and if Dr. Butter or yourself can suggest any plan for giving effect to this proposal, every aid in carrying it into execution will be afforded by Government.

A copy of this correspondence will be forwarded to the Secretary of the Asiatic Society, as it may perhaps be thought of sufficient interest to be published in the Journal of the Society.

The enclosure of your letter is returned, a copy having been retained for record.

I have, &c.

(Sd.) C. B. THORNHILL,

Offg. Secy. to Government, N. W. P.

Notes on the Herbarium of the Calcutta Botanic Garden, with especial reference to the completion of the Flora Indica.—By THOMAS THOMSON, M. D., F. R. S., Supt. H. C. Bot. Garden.

It is probably known to all the members of the Asiatic Society who are interested in the science of Botany, that Dr. Hooker and myself have undertaken the publication of a complete work on Indian plants, the first volume of which, under the title of *Flora Indica*, was published last year. The continuation and completion of this work is of the utmost importance to the advancement of Indian Botany, which is much retarded by the want of a properly digested catalogue. The further progress of the work will, however, in a great measure depend on the co-operation of botanists throughout India, the materials here, though extensive, being too incomplete, to enable me to advance without further contributions.

I bring this subject before the Asiatic Society therefore with a double object. I wish in the first place to make known the nature and extent of the Herbarium belonging to the garden, and in the second, by means of the Society and the Journal, to bring to the knowledge of botanists in all parts of India, the assistance which it is in their power to render in furthering the progress of a work, the object of which is, to render available to the student of Indian plants information scattered over a thousand detached works, and therefore only accessible to the professional botanist.

The Calcutta Botanic Garden is associated almost with the commencement of modern Indian Botany. The classic work of old Rheede who, two centuries ago, illustrated a series of drawings, often remarkable for their fidelity, by a condensation of all the facts obtainable from the most intelligent Brahmins of Malabar, belongs to a former epoch, and stands alone. It was for many years almost the only source from which botanists could know Indian plants, and even now we have in many cases to refer to its plates instead of to nature for the types of the genera of the older botanists.

Modern Indian Botany began with the Danish missionaries of Southern India, who were attracted to the science, in the first instance, by the benevolent wish to combine the practice of the

healing art with the duties to which they had devoted themselves. This motive actuated the whole body, but a few continued to prosecute the science for its own sake, and some of the medical officers of the Madras Presidency formed with them a botanical association, by which plants were examined and named, and to which the discoveries made by members at a distance were reported. One of the most distinguished of these associates was William Roxburgh, who was appointed in 1794, on the death of Col. Kyd, the Superintendent of the Calcutta Botanic Garden, and commenced at once the labours which have gained for him a position at the head of Indian Botany, of which, indeed, as the author of the first Flora, he may, in one sense, be said to be the founder.

During a long series of years, Roxburgh examined, described and prepared drawings of the indigenous plants of India. In all possible cases, he cultivated them in the garden under his own eye, and examined them carefully in all stages of growth. The descriptions, which are remarkable for their accuracy, by degrees took the shape of a Flora Indica, comprising all the plants of the Northern Circars, in which Roxburgh resided before he came to Bengal, those of Bengal proper, and such of the plants of Silhet and Chittagong as were introduced by active Collectors into the gardens and flowered there. It is therefore a nearly complete flora of the plains of India from the base of the Himalaya to Cape Comorin, and contains descriptions of most of the plants which a botanist will meet with in the neighbourhood of the presidency towns or the large stations.

The drawings, more than 2,000 in number, were made in duplicate. One set is in the Garden Library, the other with corresponding numbers is in the India House. A selection of three hundred of the more remarkable forms was published in England by Sir Joseph Banks, at the expense of the Court of Directors, and outlines of many others have been introduced by Dr. Wight into his *Icones plantarum*. The species described by Dr. Roxburgh in the Flora Indica can, in general, be readily determined from these drawings, so that there is less occasion than might have been expected to regret the absence of dried specimens. Dr. Roxburgh probably collected largely. He certainly transmitted considerable collections

to scientific bodies in Europe, but most of these have been dispersed. There are, however, a considerable number of his specimens in the British Museum, at the Linnean Society and the University of Edinburgh.

Dr. Roxburgh was succeeded at the Botanic Garden by Dr. Francis Buchanan afterwards Hamilton, a man to whom extensive travel had given great knowledge of India. In the Peninsula he had explored the Carnatic, Mysore, Malabar and Canara, and in Bengal, the Rajmahal hills and the whole of the Northern and Eastern districts as far as Assam and Tippera. He had also visited Nipal. The Botanical results of these journeys have been unfortunately in a great measure lost, but many important facts are recorded in his commentaries on the *Hortus Malabaricus* of Rheede and the *Herbarium Amboynense* of Rumph, two memoirs in which Hamilton has embodied a great deal of valuable information on Indian Botany. His collections form part of the Herbarium of the University of Edinburgh.

In 1815, the Botanic Garden came into the hands of Dr. Wallich, an ardent and enthusiastic botanist, under whom Indian Botany continued to progress rapidly. The labours of Roxburgh had completed the flora of the plains of India, though the work remained still in MSS. Dr. Wallich took a wider range. Our recent war in Nipal having resulted in the appointment of a Resident at the Court of Katmandú, Wallich joined Mr. Gardner there and collected assiduously for more than a year in the vicinity of the capital. The interior was then as now jealously closed against European travellers, but by means of native collectors he added a fair knowledge of the alpine flora to the abundant information regarding that of the temperate and tropical regions which he obtained by his personal exertions.

Dr. Wallich's duties at the gardens not permitting him to prolong his residence at Katmandú indefinitely, he trained a number of collectors who continued during a long series of years to transmit dried specimens from Nipal. Mr. Blinkworth, an active collector, at the same time explored Kumaon, and Mr. Gomez contributed extensive collections from the rich province of Silhet and from the neighbouring Khasia hills, while Wallich himself visited Penang

and Singapore, thus adding a knowledge of the Malayan flora to that of the rest of India.

Abundant materials for the elucidation of the Botany of India having thus been brought together, it became a question in what manner they might be disposed of to most advantage. Dr. Wallich at one time entertained the idea of incorporating them into an Indian Flora, and with this object he commenced the publication of an edition of Roxburgh's Flora into which all his own discoveries were introduced. As his collections accumulated, this task became every day more difficult, and his other duties, and in particular the state of his health, rendered its progress extremely slow, and at last compelled him to stop, after publishing two volumes, which extend as far as the end of Pentandria Monogynia in the Linnean arrangement, and include therefore the 1st volume of the ordinary edition of Roxburgh, or less than $\frac{1}{3}$ of the whole work.

Dr. Wallich then determined to return to England with all his collections, and with the consent of the Court of Directors, which was at once liberally accorded, to distribute amongst scientific men in all parts of Europe the materials which he had accumulated, but could not hope to have leisure to work into shape, in the hope that each recipient would be able to lend his aid to the study of some part, so that by the joint labour of all, the Indian Flora might be benefited and furthered. The result has been satisfactory. The dispersion of the Wallichian Herbarium over all parts of Europe enabled students of Botany every where to obtain access to a set of these specimens, and monographers have, in describing them, uniformly quoted the numbers attached to the specimens. The Wallichian Herbarium has, therefore, become one of the foundations of Indian Botany, and it is a source of regret to me that a set of its specimens does not form a part of our collection here. Steps have recently been taken which will, I hope, remedy the deficiency, as several duplicate sets still exist in the Linnean Society's collection.

Those only can appreciate the difficulties with which Dr. Wallich had to contend in this distribution, who have had much practice in the arrangement of dried plants, and are familiar with the irksome task of assorting the miscellaneous collections sent in by numerous

collectors, variously ticketed and often in great confusion. A quick eye and a ready hand bring the species together, but constant watchfulness is even more essential, in order to prevent errors in localities, the greatest evil to which we are exposed in arranging large collections. It is therefore not at all surprising that Dr. Wallich should have occupied four years in this task, and yet been compelled to return to India before it was completed.

Between 1815 and 1828 a large and valuable series of botanical drawings was prepared under Dr. Wallich's superintendence. These he took to England with him and they are deposited at the India House, but as no copies were made, we do not as in the case of the Roxburghian drawings possess a corresponding set. From among these drawings, Dr. Wallich selected three hundred of the most interesting, which were published under the title of *Plantæ Asiaticæ Rariores*, a superb work alike honorable to the court and to the author.

The commencement of the present Herbarium of the Calcutta Botanic Garden dates from Dr. Wallich's return to India in 1832. The separate collections of which it is made up having been incorporated together, the following list has been prepared to show the origin of the different parts thus combined into one.

I.—*Indian Collections.*

1. A few specimens from the Carnatic collected and named by Dr. Rottler and given by him to Dr. Wallich, who brought them with him from Denmark.

2. A complete series of specimens collected and dried in the Botanic Garden. Most of these are ticketed by Dr. Wallich, the collection having undergone careful revision by him after his return from Europe in 1833.

3. A portion of the collection made in Khasia and Assam by the Assam Tea Deputation in 1835-36, consisting chiefly of endogenous and acrogenous plants. The exogens of this collection were sent home by orders of the Hon'ble Court of Directors about four years ago.

4. A large collection from the Khasia hills made by collectors in garden employ. This collection contains many duplicates.

5. A very extensive collection made in Assam by the garden collectors under the able superintendence of Col. Jenkins, containing a very complete series of the plants of the plains and lower hill jungles of Assam, with many duplicates. It contains also a few specimens from the Bhotan mountains.

6. A very extensive collection made in the plains and hilly districts of Upper Assam and in the Naga mountains by Mr. J. W. Masters, and presented by him to the garden. This collection is remarkable for the very careful manner in which the localities are marked upon each specimen. It contains many rare and valuable plants and numerous duplicates.

7. Col. Vicary's Indian collections, made in the Saugor district, in Birbhum, Berhampur, Dinajpur, and in the districts of Garhwal, Simla and Kunawar in the western Himalaya. This collection contains few duplicates, and many of the specimens are in a bad state of preservation, but it is very valuable, because the locality of every specimen is carefully marked on a ticket attached to the plant, or written on the sheet of paper in which it is enclosed. The Saugor and Himalayan collections are the best. Both contain many plants which were unknown to botanists at the time these collections were formed, but which have since been discovered by subsequent collectors and published in various works.

8. A small collection of Ceylon plants presented to the garden by Mr. J. Watson in 1836, contains no duplicates.

9. *Mr. Griffith's collections.*—Two complete sets of these most valuable collections were sent to England, and are (I believe) in the India House. The triplicates remained with Dr. McClelland during the time that he was occupied in the publication of Mr. Griffith's posthumous papers, and were transferred by him to my charge in 1856. A small collection chiefly of Afghan and Malacca plants has been in the garden Herbarium since 1848. Those received in 1856 consist partly of garden plants selected by Mr. Griffith for himself from the garden Herbarium, but mainly of more or less complete sets of the collections made by Mr. Griffith on his several journeys. The specimens retain in many cases the original tickets and are carefully numbered. The numbers correspond with those of Griffith's Itinerary notes, published by Dr. McClelland.

None of the series are complete, but the number of Afghan and Khasia plants is much greater than that of Bhotan or Mishmi ones. There are also a great many excellent specimens from Malacca and a few from the Coromandel Coast. The collection contains likewise a considerable number of specimens from Sambalpore collected by the late Major Kitto, some specimens from the Carnatic collected by Mr. Griffith soon after his arrival in India, and a few of the numbered specimens of the Wallichian herbarium which Mr. Griffith seems to have brought with him from England.

10. A small collection made by Lieut. Parish in the district of Mandi in the Punjab Himalaya during the cold season of 1847-48. The ferns of this collection are numerous and good.

11. A large collection made in the Tenasserim provinces by Dr. Falconer, while on deputation (in the year 1849.) The specimens are in general excellent, and there are a considerable number of duplicates. The localities are always carefully marked.

12. A collection made by Dr. McClelland in 1849 in the Birbhúm district. The localities are carefully marked and there are some duplicates.

13. An excellent collection of Assam and Khasia plants made by Mr. C. J. Simons, and presented to the garden by Sir W. J. Hooker, K. H. The specimens are very fine and are all carefully numbered and the localities marked.

14. A set of excellent specimens of Khasia plants collected by Mr. Oldham in 1851-52, and presented by him to the garden. Mr. Oldham most liberally allowed me to select from his collection as many specimens as I wished, so that we possess excellent illustrative series of specimens of many variable species.

15. A large collection of Pegu plants made by Mr. Scott, head gardener H. C. Bot. Garden, while on deputation in that country in 1855. The specimens are very good and the collection contains many interesting plants.

16. A small collection of rare and interesting Malacca plants presented by Captain Moxon.

17. A complete set of specimens from the Ceylon garden Herbarium presented by Mr. Thwaites, the Director. This is a numbered collection and contains all the known plants of the Island, so that it is of very great value.

18. A large Herbarium from the Bombay Presidency presented by Dr. Gibson, consisting partly of his own collections, and partly of those of Mr. Law from the Concan and Dekhan, and partly of Dr. Stock's Sindh and Beluchistan collections.

19. A good collection from the Northern Division of the Madras Presidency presented by Dr. Cleghorn.

20. A most interesting collection from the Punjab Himalaya and Western Tibet presented by Mr. M. P. Edgworth, C. S. The Himalayau specimens were collected by Mr. Edgworth himself, those from Lahul and Ladak by Capt. Hay.

21. A set of the Indian collections made by Doctors Hooker and Thomson between 1841 and 1851 which are now being distributed in England.

These collections illustrate more or less fully the plants of Western Tibet, of the Western Himalaya, of the Punjab and the upper Gangetic plain, of Sikkim and the Khasia hills, the Sôn valley, Silhet, Cachar and Chittagong.

22. Specimens of plants from different parts of India, not sufficiently numerous to be included as collections in this list, have been presented by Mrs. Burney from Ava, by Capt. Margrave from Arracan, by the Rev. J. Parry from Jessore, by the Rev. Mr. Schmid from the Nilgherry Hills, by Col. Madden from the Western Himalaya, by Dr. Fayrer from Khasia and by Lieut. Beddome from Jabalpur.

II.—*Non-Indian Collections.*

1. An excellent collection of British and other European plants selected from the Herbarium of the Royal Botanic Garden Kew and presented by Sir W. Hooker.

2. A good collection of Norwegian plants presented by Dr. Blytt, an eminent Norwegian botanist, to Mr. Griffith, and received from Dr. McClelland in 1856.

3. A large collection of European grasses, the source of which I have not yet been able to trace. The specimens have printed tickets attached and were probably purchased by Dr. Wallich.

4. A large collection of Swiss and French plants presented by M. DeCandolle to Dr. Wallich, but unfortunately for the most part in very bad preservation.

5. A good collection of British ferns presented by Mr. R. Scott.
6. A small collection of Scotch plants supposed to have been presented to Dr. Griffith by Dr. Balfour.
7. A small set of Siebers Egyptian plants, purchased by Dr. Wallich.
8. A considerable collection of Cape plants collected by Dr. Pappe.
9. A collection of Mauritius ferns presented by Mr. McMurray in 1856.
10. A small collection of the plants of the provinces of Dahuria in Asiatic Russia, presented by Dr. Fischer to Dr. Wallich.
11. Interesting collections of Aden plants presented by Dr. Boycott and Lieut. Playfair.
12. A large collection of New South Wales plants presented by Col. Vicary.
13. A smaller but excellently preserved collection of Australian and Tasmanian plants, the donor of which has not been recorded.
14. A small collection of Tasmanian plants presented by Capt. Margrave.
15. An extensive collection chiefly of New Holland plants selected from the Hookerian Herbarium and presented by Sir W. Hooker.
16. A few New Zealand ferns presented by Mr. Bedford.
17. A complete collection of the plants of the United States of North America chiefly from the states of New York presented by the Rev. S. Williams in 1844. This collection is carefully named and ticketed and is very valuable.*
18. A small collection of North American plants presented by Mr. Joseph Carson in 1836.

An examination of this list will show that our Herbarium is still very imperfect, and that there is no part of India from which contributions would not be welcome. It is, however, sufficiently complete to form an excellent basis on which, with the assistance of contributors from all parts of India, a general Herbarium may be completed in the course of a few years, and it contains a sufficient number of authentically named specimens to enable me to name the collections with which I may be favoured, without much diffi-

culty on the spot, and thus to avoid the necessity of sending them to England for comparison.

In a country like India, where the distribution of plants is regulated so completely by the climate, it is most important that botanists wherever situated should devote themselves to the complete elaboration of the plants of the district in which they reside, and that they should, if possible, combine careful meteorological observations, especially of the humidity, with their botanical labours. It is only thus that the exceptional cases (if there be any) of plants whose distribution is independent of the climate, can be speedily eliminated.

To the philosophical botanist who is desirous of investigating the laws by which the distribution of plants is regulated, no flora in the world is more interesting than that of India, though it is in point of numbers of species a very poor flora, when compared with Australia, south Africa, or the continent of South America, to all of which nature has been liberal to profusion in richness and variety of vegetable forms. The interest of the Indian flora lies in the absence of new forms, in the identity of its plants with those of other countries, in the occurrence of European plants on our western mountains, of Japanese plants in the Eastern Himalaya, of Chinese plants in our dense eastern forests, of a purely Egyptian flora in Sindh, of a Polynesian flora in Malaya, and of numerous African types in the mountains of the Madras peninsula. It may interest Indian botanists, for whom especially this little paper is intended to give a slight sketch of the different floras which co-exist within the limits of British India.

Disregarding for a moment the Malayan Peninsula, British India may be described as an equilateral triangle with sides 1,500 miles in length, the apex advancing far within the tropics, the base in the hotter part of the temperate zone. The tropical portion of this triangle is traversed by ranges of hills of moderate elevation, most lofty toward the south, where they rise above 8,000 feet, less lofty in the north where the average height of the ridges is not more than 4,000 feet. Within the temperate zone, the level of the surface is much lower, and it is there occupied by the basins of two great rivers, the Indus on the west and the Ganges on the east. South of the tropic this large triangle is every where surrounded by

sea, but north of the tropic the boundaries of India are traced on land, and are more or less artificial.

The Indian Peninsula includes two distinct mountain systems. The meridional chain of the Ghats attains in Travancore and Malabar an elevation of 8,000 feet, but north of Nagar rarely more than 4000. It runs parallel to the western coast, and sends off transverse chains running east, which are flattened out into a table-land highest in the south, where the continent is narrow, lower to the north where the continent is wider and the rivers larger. North of the Godavery the transverse range of the Vindhya runs from sea to sea almost on the tropic, sending out on all sides table topped branches and connected by a low ridge with the ghats further south, and with the Himalaya by the curious oblique Arawali range, which forms a water-shed between the Indus and Ganges.

An extensive plain watered by the Indus on the one hand and by the Ganges on the other, separates the Indian Peninsula from the Himalaya, which rises on the north a stupendous barrier, constituting the Indian portion of the enormous mountain mass of Central Asia, which presents steep declivities in all directions.

After the configuration and elevation of the land, the most important element by which the distribution of vegetable forms is regulated, is climate. The climate of India depends mainly on the rain-fall. Situated entirely in the northern hemisphere, and with an enormous mass of land to the north, the summer winds blow strongly from the south, while the winter winds are northerly. The south wind commonly called the S. W. monsoon is always a sea wind and therefore brings rain. The summer is therefore the rainy season in India. The northern winter wind is generally a land wind, so that the winters are generally dry. To this, there are two exceptions, the coast of the Carnatic and the Malayan Peninsula, in both of which the N. E. monsoon is a sea-breeze and therefore a rain bringing wind.

The normal climate of India is divided into a cold, hot and rainy season, but the amount of rain depends on the position of each place. The west coast of the Peninsula, which presents to the S. W. wind a lofty range of mountains, is extremely rainy at one season, but the east coast, being sheltered by the higher hills to the westward, is much less so. On the Ghats the rain-fall diminishes as

we go north, and when we reach Gujerat has become very small indeed. In Sindh there is no rain at any season.

In the Himalaya, the rains are heaviest to the eastward, where the chain is nearest the sea, and they diminish gradually, as we proceed west, till they entirely disappear in the mountains of Afghanistan. In the Malayan Peninsula in which both monsoons blow over sea, all seasons of the year are rainy, the summer or South-West monsoon being rather drier from the intervention of the island of Sumatra, which condenses much of the rain at that season.

In consequence of differences of elevation, three different climates require to be studied in treating of the vegetation of India. These are the tropical, the temperate and the alpine. Rising out of the hottest part of the temperate zone into the regions of perpetual snow, the slopes of the Himalaya exhibit all these forms of vegetation at different elevations, but as none of the mountains of the Peninsula rise above the temperate zone, the alpine flora is found only in the Himalaya. This alpine flora is found at elevations above 13,000 feet, and varies with the degree of moisture. In the outer Himalaya, where the snow-fall is copious and the summer humid, but with bright sunshine, we have a flora closely resembling that of the Alps of Europe. A similar flora is found on the highest peaks of Afghanistan, of Persia and of Asia Minor, and beyond Europe extends into the Alps of Greenland and of temperate N. America. In the more arid mountains of the interior we find a purely Siberian Flora.

In Southern India the temperate flora begins about 7,000 feet of elevation, but as we advance northward, the requisite elevation gradually diminishes till in the most northern part of the Himalaya, it is not more than 4,000 feet. In Southern India therefore the temperate flora is found only in isolated patches on the mountain tops, but along the Himalaya it is continuous from one end of the chain to the other. Here it presents three distinct types, the first of which is the normal Himalayan type of forms which are adapted to a climate dry at one season, wet at another, occupying the Central Himalaya. To the west, we have the European type intruding upon and mingling with it, especially in the inner ranges where the climate is drier. To the east, the Japan or moist temperate flora is especially developed in Khasia and Sikkim where the climate,

throughout the year, or at least throughout the whole period of vegetation, is extremely moist.

The tropical flora is dependent in like manner upon the climate, and partially also on the nature of the surface. The open plain of the Indus and Ganges which stretches from sea to sea, has a gradually diminishing rain-fall as we ascend the Ganges and approach the Indus. The rain-fall is also greater everywhere near the base of the Himalaya and diminishes as we recede from it. In Sindh and the Western Panjab no rain falls, and there we find an arid flora identical with that of Egypt, with which in fact it is continuous across Arabia and Southern Persia. The characteristic plants of this arid flora extend at a distance from the mountains down the valley of the Ganges, but never approach the more humid Himalaya, in which we have a flora like that of Bengal, though they recur in the Deccan and Carnatic, which are sheltered from the moist wind of the S. W. monsoon by the higher ranges of the Ghats.

In the hilly districts of India where a dry hot season is succeeded by more or less heavy rain during the monsoon, we find in all parts of the empire a very similar flora. On the eastern slopes of the Ghats, in the valleys of Nagpore, on the slopes of the Arawali, and along the base of the Himalaya (except to the eastward and in the extreme west) we find the same monotonous forest consisting partly of evergreen and partly of deciduous leaved trees with many creepers. The trees are gay with flowers in spring, and after being scorched by the intense heat of May and June burst into life with renewed vigour at the commencement of the rains.

It is only when the humidity begins to linger in the damp and shady valleys throughout the year that the flora changes its character. This we find to be the case in many parts of the valley of the Nerbada, and in the deeper ravines of the Ghats of the Concan. The number of peculiar forms increases as we go southward, and is very great in the forests of Travancore and Ceylon. So in the Central Himalaya, humid forms appear as far west as Kumaon, increase in numbers in Nipal, predominate in Sikkim and are universal in Assam. In Malaya where the climate is humid at all seasons we have the flora of the Archipelago, the richest and most varied which is found in any part of India.

I might illustrate each of these floras at great length, but the object of this paper is not to bring forward examples of each, but to induce botanists to lend their assistance in establishing their limits on a sure basis of observation, by collecting as far as they can, and transmitting for examination and comparison, the plants of their respective neighbourhoods, so that the exact area inhabited by every species may be ascertained, and the main facts of the Geographical Botany of India be accurately determined.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR AUGUST, 1856.

At a monthly general meeting of the society, held on the 6th instant, at the usual hour,

Dr. G. G. Spilsbury, Vice-President, in the chair.

The proceedings of the last meeting were read and confirmed.

Presentation received.

From the Grant Medical College in Bombay, a copy of the report of the institution for the Session 1855-56.

A note from Mr. H. V. Bayley, announcing his withdrawal from the society, was recorded.

A. Roberts, Esq., C. S., Major W. C. Erskine, and Rajah Sutto-shurn Ghosal Bahadoor, proposed and seconded at the last meeting, were balloted for and elected members.

The following gentlemen were named for ballot at the next meeting :—

Lieut. H. S. Forbes, Artillery, supervisor of the Ganges, proposed by Major Ouseley, and seconded by Mr. Atkinson. Sultan Mohamed Busheerooddeen Saheb, proposed by Mr. Grote, and seconded by Mr. Atkinson. A. R. Young, Esq., B. C. S., and R. B. Chapman, Esq., B. C. S., proposed by Mr. Beadon, and seconded by Mr. Atkinson.

With reference to Mr. Greenough's Geological map of India, a copy of which was sent by the Bengal Government in September last, with a request that the society would express their opinion of its merits, the Council submitted the following report drawn up by a special Committee appointed for the purpose :—

TO THE COUNCIL OF THE ASIATIC SOCIETY OF BENGAL.

The Sub-committee appointed by the Council of the Asiatic Society under date the 28th September, 1855, to consider and report

upon the Geological and Physical map of India, prepared by Mr. Greenough, which had been forwarded by the Government of Bengal, with a request that the Asiatic Society should give effect to the wishes of the Court of Directors, returning the map with such information as they might possess bearing upon its accuracy, have considered the questions referred to them, and now beg to submit their report.

The despatch of the Court of Directors states, that this map has been "compiled by Mr. Greenough from such materials as he has been able to collect," and your Committee would most fully acknowledge the great labour of research and the careful compilation which this map evinces. They cannot but remark, however, that it is not only customary but very desirable that in such cases the principal sources of information which have been taken advantage of, the special authors or observers consulted, and the general character of the data so compiled, should be fully stated. They believe that this is even more largely requisite with regard to a country like India, concerning the geology of which so little is known, than with regard to the more closely investigated districts of Europe.

No memoir or report has accompanied the map. Your Committee is aware that an abstract of Mr. Greenough's communication to the British Association for the advancement of Science at their meeting in 1854, when this map was first presented, has been published in the reports of that association; and a reference to this short abstract has more fully convinced them of the important omission which has occurred in not supplying a copy even of these few words of explanation along with the map.

It appears obvious also, that the compiler has had the benefit of MS. reports and communications, inasmuch as several statements, sometimes of startling importance, have been embodied in this map, which your Committee is not aware have ever before been published and which, they believe, would never have remained uncontradicted had they been so. Your Committee is altogether unable to say what value should be attached to such statements, but were they to judge from the analogy of other similar geological statements in this country, they would be disposed to rank them as nothing better, if not something even worse, than conjecture.

Your Committee would also express their regret at finding that more care has not been taken in the preparation of the map with regard to the purely topographical or geographical portion. In these respects it is altogether behind the present state of our knowledge of this country. Mr. Greenough states it to be the result of twenty years' labour. It is therefore not improbable that an old map of that date originally used for the recording of geological facts has been continued as the basis of the present one. If a new compilation has been made, great want of care and attention appears to have been allowed in its preparation. Names of the same places are in some cases repeated at points differing by whole degrees in latitude, ranges of hills have been misplaced occasionally by some hundred miles. In brief, your Committee consider the map so wanting in accurate geographical information, that it never can become the basis of a careful geological map.

Your Committee have been unanimously impressed with the strong conviction, that the time which the Court of Directors have proposed for the collection and collation of more accurate information regarding the Geology of the country, is much too short, to admit of any really useful result being obtained. They have given below a list of isolated points in which corrections are required, but for any general improvement much more time will be needed.

Your Committee desire to acknowledge the value of this map, they look upon it as a most important contribution to the natural history of this country; they consider it will prove both a guide and an aid to the researches of many. It will shew, however imperfectly, the great desiderata in the geological history of the country, and will form an index to the present state of knowledge. But they conceive, that it should be allowed to remain in its present state, to form a memorial of the condition of our geological knowledge at the time of its publication. They think it too erroneous in many respects, to be capable of being used as the ground work of an accurate map; and they look forward with anxious expectation to the time when the more detailed investigations of the geological survey in this country will furnish data for such a compilation. They can refer to the proceedings of your Society for the present year in proof of these views. New light has been within

the last few months thrown upon the structure of immense areas, which will in reality affect the whole system of colouring adopted on the map under consideration. But the details of such researches are not as yet sufficiently extended to enable them to be made use of for the purposes of a general map.

Your Committee are the more deeply impressed with the inexpediency of any present attempt at the issue of a new edition (as the Court of Directors would appear to contemplate) of this map, by the fact that any corrections now made cannot have the benefit of the knowledge and research of the original compiler. Geology had to mourn the loss of Mr. Greenough even before the actual publication of this map. And while your Committee is persuaded that some of the errors they have alluded to, would never have escaped his careful revision, they think it would be scarcely possible for any other person now to take full advantage of such corrections as might be noted. If a new map be desired they conceive that a competent geologist should be requested to devote his energies to it for the ensuing two or three years, so that a map, brought up fully to the most recent state of knowledge on the subject, might then be published, while the present map would ever remain a monument of Mr. Greenough's zeal and labour.

Your Committee cannot avoid expressing their entire concurrence with the views of the Court of Directors in thinking, that such maps "may be made the means of procuring further, and more correct information" on the geology of the country, but they feel satisfied that this must be brought together by some one acquainted with Indian geology as well as European; and must shew a less exclusive adherence to European types and European nomenclature.

All which they would submit as their report on the question referred to them.

THOMAS OLDHAM.

C. B. YOUNG, *Captain Engineers.*

H. L. THUILLIER, *Major.*

E. G. SPILSBURY, *M. D.*

A. GROTE.

H. PIDDINGTON, *Curator Museum Economic Geology.*

July 1st, 1856.

Memorandum of corrections which ought to be made in Mr. Greenough's Geological Map of India.

1.—The fossils found in the boring at Fort William, Calcutta, were all of recent species, and not of Sewalik age.

2.—In the neighbourhood of Silhet, the Cossia hills, &c. the words “nummulite bed” under the name Silhet, ought to be removed—none such exists there.

3.—“Silhet Coal field” placed on the map to the west of the town of Pondua, to be erased. No Coal near this.

4.—Jynhanpoor on the map ought to be Jynteapoor.

5.—The words “Coal many hundred feet thick” under Jynteapoor, contain an assertion totally unfounded.

6.—A peculiar colour is carried all along the base of the hills here, between the tint of green representing the Eocene, and the pink of the gneiss, &c. for which no representation is given in the index of colours. We presume this to be altogether a mistake of the colourers.

7.—The dotted lines for colour boundaries near the west of the Cossia and the Garrow hills have been altogether disregarded.

8.—The granite is not known to extend along the northern face or slope of the Cossia and Garrow hills—but is found in detached patches in the hills.

9.—At and near to the intersection of the parallels of 25° N. lat. and 91° East long., the country is entirely alluvial. The words “nummulite beds, and limestone” are therefore erroneously inserted.

10.—The “Cyrtoma, a new species of the fossil Ecchinida,” shewn as occurring in the gneiss is from the Eocene. The Cyrtoma, is a *genus* not *species*.

11.—The mode of representing the area covered by the coal-bearing rocks in Bengal gives a very erroneous idea of the geology of the country. They do not in any known case form a continuous band, but invariably occur in isolated basins or areas, included in the gneiss.

12.—“Patturghatta” near to Colgong is on the river Ganges. There is no “limestone” there.

13.—The Laterite from Balasore upwards forms only a very limited and broken band, and does not occur in the immense spread shewn here.

14.—There is no laterite in the flat country near Shahabad. It is all alluvial.

15.—In the districts marked “unknown” near Cuttack, the survey have mapped coal fields.

16.—There are on this map two words “Kuttack” inserted, there should be only one. That most to the south on the Mahanudi river is more nearly in the correct position than the other.

17.—In the Curruckpore Hills near Monghyr no limestone is known, the words “white marble,” &c. must therefore be removed.

18.—The *Curhurbalee coal field* is a whole degree of longitude out of its true position.

19.—There is no long line of coal-bearing rocks stretching by the Adji river in Beerbhoom.

20.—The Rajmahal Hills are not identical with the Goomah Ghauts as given. The Rajmahal hills are near to the town of Rajmahal, two degrees east of where they are shewn.

In Central India, &c.

21.—*Omercuntuc*, the source of the Nerbudda is placed on the Soan river, whereas it should be to south of Ajmeergurh when a pencil \times has been put.

22.—The *Maikel Pahar* on which is the table-land from whence the Nerbudda rises, is all trap capped with laterite.

23.—South of the Nerbudda from Ramgurh to Ajmeergurh (?) is coloured *syenite*, &c., while most of it is laterite, and to the north below the Maikel hills about Sohagpoor, it is sandstone.

24.—A large tract between Mundlah and Jubbulpore is coloured “*Coal of all ages*,” but should be trap on both sides of the river.

25.—Coal is found at Lemaita Ghat, South of Gurrah near Jubbulpore : not marked.

26.—*Goondwana* represented on the map as gneiss, is chiefly coal-bearing rocks covered with trap.

27.—“*Mahadeo Pahar*” or the Mahadewa range, is altogether out of position. The range on the map north of *Goondwana* is nearly their position.

- 28.—The Mahadewa Hills are all sandstone.
- 29.—The Mittoor range is trap.
- 30.—The sandstone represented on the map by the bright yellow colour is continuous down the valley of the Nerbudda considerably further to the west than Hindia, instead of ceasing at Hosingabad.
- 31.—The area coloured as “coal, &c.,” and which includes Bowergurh, Doregurh, &c., is in reality gneiss.
- 32.—Bhavergurh as here printed should be Bhower, or Bhora-gurh.
- 33.—Bhoradoorg and Bhoragurh are one and the same place.
- 34.—At *Oomrait*, *Coal* is printed and pits shewn, but it is coloured as gneiss.
- 35.—The whole of the Vindya and the Kymore ranges are of a totally different age from the coal rocks south of the Nerbudda.
- 36.—About six miles south of Ramteak Manganese said to be abundant.
- 37.—At *Koorraddee*, marble much used in building, is chiefly dolomitic.
- 38.—The whole course of the Wyne Gunga is in trap rocks.
- 39.—The Palamow and Sirgooja coal fields are not united.
- 40.—There is no ground whatever for colouring the great masses of the Himalayas as granite. In Sikkim for instance, Kunchinjinga is undoubtedly not granite as here shewn, and for many of the other great masses the same is true.
- 41.—At the foot of the Darjeeling Hills the band of colour representing the Eocene rocks, is more than twice as broad as it should be. It should not extend into the flats or terai.
- 42.—There is no ground for colouring such an area as granite in Shahabad. It occurs in detached points and masses.
- 43.—The *coal* in Cutch is not marked.
- 44.—There are no known reasons for connecting the cretaceous rocks near Trichinopoly with those at Verdachellum near Pondicherry, so as to form a continuous band.
- 45.—What ground is there for saying that coal is found 400 feet deep, at or near Salagur in the Sunderbunds?
- 46.—In Pegu and Arracan to the east of the Bay of Bengal. *Mynoung*, which is shewn in Arracan to west of the hill range, is in reality on the banks of the Irrawaddi.

47.—*Sarawaddi* is equally on the river Irrawaddi.

48.—*Kyouktaran* is also on the river.

49.—From this point northward along the river, as far as the map extends, the greenish tint used for tertiary rocks may be continued.

50.—“*Silurian beds*” entered near *Patanago* to be erased ; all tertiary.

51.—The words “ transition limestone” near $18\frac{1}{2}$ N. lat. to be erased, all is tertiary.

52.—Again “ transition limestone” (at 19° N. lat.) ought to be removed, and the words “*Silurian slate*” under *Pukan gyi* ought to be removed : none being there.

53.—In colouring in many cases there has been a great want of care. At N. lat. $28\frac{1}{2}$ and East long. 68° to 71° a case of this kind may be seen, when the colours on the two different sheets do not join within 120 miles ; and several other cases might be quoted.

The scale of colours appear to be altogether deficient in clearness and distinctness, the tints approaching each other too closely.

THOMAS OLDHAM,

C. B. YOUNG, *Capt., Engineers.*

H. L. THUILLIER, *Major.*

E. SPILSBURY, *M. D.*

A. GROTE.

H. PIDDINGTON, *Curator, M. E. G.*

The report was approved and adopted.

Communications were received—

1.—From Mr. Grey, Secretary to the Government of Bengal, forwarding Dr. McNamara’s report on the Iron Ores last sent from Assam by Col. Hannay.

The report is as follows :—

The iron is present in the form of the magnetic oxide, the masses of which are scattered through a large proportion of silicious matters. The ore contains on an average 40.2 per cent. of metallic iron.

By placing some of the ore in a basin, and washing it with a stream of water, I was able, very quickly and with very little trouble, to obtain an ore containing 65 per cent. of metallic iron, these specimens may therefore be considered very rich as regards the amount of iron in them.

2. From Mr. Secretary Grey forwarding for the information and guidance of the society extracts from a despatch No. 41, dated 18th May last, in reference to the proper application of the Government grant for the publication of Oriental works, and adding on behalf of the Lieut.-Governor that the Society's account of the Oriental Publication Fund for 1855, exhibited a larger amount of liabilities than that commented on by the Hon'ble Court. The following is the Court's despatch.

PUBLIC DEPARTMENT.

No. 41 of 1856.

Our Governor General of India in Council.

Para. 1.—These accounts exhibit a balance in hand on the 28th February, 1855, of Rs. 5,546-6-7, but

Narrative dated 13th July, No. 17, 1855, para. 41. Forwarding accounts of the expenditure of the allowances granted to the Asiatic Society of Bengal for the publication of works in the languages and literature of India for the years 1853-54.

with liabilities considerably exceeding that amount or Rs. 9,224-2. This will be partly met by the monthly grant during the current year, but it will involve the suspension of many of the works in progress. The difference is more than ought to have been incurred, and we

expect that in future the annual outlay will be limited to the amount of the annual receipts.

2.—The increase of liability arises no doubt from the greater activity given to the publication of the numbers of the *Bibliotheca Indica* by the arrangement adopted by the Asiatic Society of paying the editors for work actually performed, thus giving them an inducement to more diligent application. As, however, there is no particular object to be gained by accelerating the publication of the *Bibliotheca Indica*, and carefulness in editing is of more importance than rapidity of publication, we are of opinion that some restraint should be imposed upon the editors of works that are likely to be voluminous or that are of minor interest, and that they should be allowed to issue only a definite number of fascicules in the course of any one year.

3.—This augmented activity and enhanced expense arise especially from the great impulse given to publications in Mahommedau literature and the Arabic language. Of the 38 Nos. of the Biblio-

theca Indica issued in 1854, twenty-seven are Arabic, only ten are Sanscrit and one English, the cost of the former is Rs. 6,752 of the ten latter less than half, viz. Rs. 3,036. This is a disproportion which is inconsistent with the comparative claims of the two departments of literature whether the ratios of the population or the value of the individual works be considered, for on referring to the Mahommedan works we observe that they have no relation whatever to India, nor to any popular form even of the literature of the Indian Mahommedans; but they embrace to a very large extent abstruse Mahommedan Theology and Sufyism in works which none but a few of the most learned Moulavies can read, and which still fewer understand, works utterly worthless for the illustration of the past or present condition of India and of little utility to European scholars. When we authorized the appropriation of a special grant to the encouragement of Indian literature, we had in view especially the literature of the Hindus, although, we did not purpose to exclude Mahommedan literature of local origin or interest, such as the historical works epitomised by Sir Henry Elliott; but we certainly did not contemplate a voluminous and costly publication of the theology and tradition and spiritual mysticism of the Mussulmans, which is the literature of Arabia and not at all that of India.

4.—We therefore direct that the encouragement of such works be hereafter withheld. The publications that have been commenced may be completed, but upon their completion we expect that the Asiatic Society in applying part of the funds placed at its disposal to Arabic or Persian works will have due regard to the light which they are calculated to throw, not upon the literature or theology of Arabia, but upon the literature and history of India.

We are, &c.,

(Sd.) W. H. SYKES.

„ R. D. MANGLES.

And other directors.

London, 13th May, 1856.

The Secretary stated that the council had not yet drawn up any reply to this communication, but that they were of opinion that, whilst expressing their readiness to carry out the orders conveyed by it, the society should at the same time transmit for the informa-

tion of the court a copy of the recent correspondence with Professor H. H. Wilson on the same subject in explanation of the principles upon which the Bibliotheca Indica has of late been conducted. The draft of a reply would be submitted at the next meeting.

3.—From Mr. Secretary Beadon intimating the wish of Government to transfer to a Museum about to be established under the superintendence of Mr. Oldham the Geological collection of Government hitherto in charge of the Society, and the services of the Curator and his establishment, and inviting the Society to deposit its own collections in the new Museum. Also a letter on the same subject from Mr. Oldham.

The letters are as follows :—

FROM C. BEADON, ESQ.,

Secy. to the Govt. of India.

TO THE HON'BLE SIR JAMES W. COLVILLE, KT.

President of the Asiatic Society.

Dated the 11th July, 1856.

HON'BLE SIR,—The Government of India having resolved on forming in Calcutta a Museum of Geology, with a library of reference in connexion with the Geological Survey of India, and under the direction of Mr. Oldham the Superintendent of that Survey, I am directed to request that the Society will place at Mr. Oldham's disposal the Museum of Economic Geology now in charge of the Society, and will permit Mr. Piddington, if he have no objection, to act as Curator of the new Museum on his present salary under the orders of Mr. Oldham, and subject also to such superintendence from the Professor of Geology in the Presidency College as Mr. Oldham may determine.

2. The grant of Rs. 314 now paid to the Society in connexion with the charge of the Museum of Economic Geology will cease from the date on which the collection is removed from the Society's premises.

3. The Governor General in council in thus relieving the Society of that which has long been a growing and unmanageable burden to their Institution, desires to express to its members the thanks of the Government for having so long permitted the collection to occupy a place in their house, and for the supervision they have exercised over the Curator's proceedings.

4. The liberal spirit in which the Society met a similar proposal from the Government in 1851-52, leaves no doubt in the mind of the Governor General in Council as to the readiness with which they will acquiesce in a new disposition of the Museum of Economic Geology which will increase its practical utility, and His Lordship in Council would fain hope that when the members of the Society are assured that the Government of India is earnestly determined to place the Museum of Geology on a liberal effective and permanent footing, and to make it contribute actively to the promotion of science and useful knowledge, they may be induced to give their aid to the cause by depositing in the new Museum under the charge of the highly competent and able officers who are appointed to manage it, and on such conditions as may seem good to the Society the valuable collection of Fossils and other Geological specimens of which they are in possession.

5. It is not too much to assume that if that collection should be placed in proximity with those in the Geological Museum, which will henceforward be rapidly increased, and effectively exhibited, it would acquire even greater interest, and be more generally instructive than in a separate establishment.

That the Museum would thereby receive a most valuable addition to its attractiveness and usefulness there can be no doubt.

I have, &c.,

(Sd.) C. BEADON,

Secy. to the Govt. of India.

From the Superintendent of the Geological Survey.

To the Secretary Asiatic Society of Bengal, dated July 19th, 1836.

SIR,—I have the honor to state for the information of the Asiatic Society, that I have been directed by the Governor General in Council to take immediate measures for the formation of an extensive Geological Museum, both Theoretical and Practical, in Calcutta, to be located for the present in a large house rented for the purpose, preparatory to, and in anticipation of proper and ample accommodation being provided in the contemplated new buildings for the University and College. In carrying out this intention, I have been directed to remove at once, into the house now provided “the

collections which now constitute the Museum of Economic Geology, and any other collections now in Calcutta belonging to Government."

I have therefore the honor to request that at the earliest convenience of the Society, arrangements may be made for handing over to me the collections of the Museum of Economic Geology now under their charge. A house, well adapted for the purpose, has been rented for a term of three years, and I am ready for the reception and arrangement of the collections.

In submitting this request I would beg to add, for the information of the Society, that the fully-expressed determination of Government is that the Museum shall contain collections sufficient for all purposes of reference and study, a collection of all the mineral products of the country, and a series exhibiting their applications, and as extensive a series of organic remains as it may be possible to bring together, special attention being directed to those from different parts of India, with such fossils of corresponding age from other countries as will tend to elucidate their history: in brief, to have the Museum as extensive, as useful, and as general, as it may be possible to make it, and also such as may be in some degree worthy of the capital of British India.

Success in carrying out this object can only be looked for from the hearty aid and co-operation of all those who may take an interest in such pursuits. I have already had promises of such co-operation from several in Europe, who feel how materially the advancement of Geology will depend on such establishments to aid in the study of the science, and I feel that it will need no argument to prove to the Asiatic Society of Bengal, the advantage which must result from such a Museum. It could only have been from a conviction of those advantages that the Society has so long, so steadily and so successfully devoted itself to the accomplishment of a similar end, and has brought together a collection of great value and importance. But no one can be more fully aware than the Society itself is how inadequate, for the exhibition of their collections, is the room which can now be devoted to them, and how impossible it is to render useful any collections which they possess, and how many valuable additions to their Museum still remain, and unavoidably

remain, packed away in boxes and quite inaccessible. Nor is there, as I believe, any prospect of such additional rooms being obtained as would suffice for the display even of the existing collections, without reference to the frequent additions received every year.

Abundant accommodation has been provided in the house which is at present intended for the reception of these collections, and ample provision will be made in the intended new buildings for such purposes.

The connexion of the Geological Museum finally with the University and the Presidency College, gives a full guarantee that there will always be a qualified staff to take charge of the collections. There must always be a professor of Geology attached to the College, who even if a Museum did not exist would be compelled to form one, and who would therefore be deeply interested in its success, while the union of this Museum with the great central establishments for education would extend its correspondents, and enable it to derive the full benefit of exchanges with and from kindred institutions in other places.

The Museum with all its collateral advantages is ordered to be made as fully available to all classes, as it possibly can be: it is to be open, under proper restriction, every day excepting Sundays, and is to be free, and every thing will be done to render it as permanently useful as possible.

Government have further sanctioned an expenditure sufficient to bring together a useful working library of books of reference on such subjects, and this also will, so far as practicable, be made freely available for all enquirers and students.

Under these circumstances I would express a confident hope that the Asiatic Society will entertain favorably the request conveyed to them through their President, and will aid in the advancement of Geology, (an end which I am sure they will acknowledge to be both useful and desirable,) by contributing the collections now in their possession.

In doing so I might add that they would only be following the example of other kindred societies at home, while, if so desired, their collections might readily, for purposes of reference, be kept distinct from others and thus be quite as useful to their members

and to others, as they now are; with the additional advantage of forming a portion of a more complete and more extended series.

I have, &c.

(Sd.) T. OLDHAM,

Superintendent, Geological Survey.

The Secretary stated that by the direction of the Council, he had replied to Mr. Beadon's letter to the effect that the Government collections would at once be placed at the disposal of Mr. Oldham, but that the question of depositing the Society's collections in the new Museum must be referred to the Society at large for their decision.

The Council were still deliberating upon the course which they should recommend the Society to adopt on this question and would report on a future occasion.

4. From Capt. W. E. Hay, Assistant Commissioner of Kangrah, giving an account of some new Greco-Bactrian and other coins in his possession accompanied by drawings.

The following are extracts from the letter :

"An interesting coin has lately been sent to me from the Punjab which (if genuine) would apparently disprove the identity of Theodotus with Diodotus, as I see conjectured by Prinsep and others. This coin, which is of silver weighing 201 grs., has on the obverse the head of the king Diodotus *Soter* filleted with the legend Diodotou Soteros. On the rev. Antimachou Theou *Basileontos* (being king). A few months ago I procured half of a coin with on one side ΔΙΟ and on the other ΑΝΤΙ. I naturally supposed the name would have been Antiochus, but this second and very perfect coin leaves no doubt on the subject. This is the reverse usually found on the Antiochus coins.

"I have a silver coin of Heliocles of large size, also a novelty; on the obverse the head is helmeted like Eukratides, and on the reverse a seated figure of Jupiter. This coin was in bad condition until I applied nitric acid, when the legend came out very distinctly. Another beautiful brown coin, or I should say a Civic Medal, seems to be new; the head on the obverse is that of a handsome young man, apparently intended to represent Apollo. If of Euthydemus,

it represents him much younger than on any of the silver coins of that king. On the rev. of this coin is a beautifully executed altar as seen in some of the Syrian coins with the legend Basileos Euthydemou. The monogram is similar to that on the copper coins of Demetrius, figured No. 4 in Cunningham's plate No. 2, to 160. I have also the same monogram on a double-headed Eukratides, which I was fortunate enough to procure, and which is an undoubted genuine coin. I have the pleasure to send you sketches of some other coins which I believe to be new and unpublished; one, a small drachma of silver of Euthydemus, is a beautiful coin, weighing 60 grains, with the same reverse as the large coins usually bear.

"Also a half drachma of Hippostratus, weighing 35 grains, similar exactly to one of his didrachmas. Also a Satrap's coin; I don't feel sure of the name, but I imagine it to be Zoilus.

"Also a beautiful new type of Myas in execution equal to the small square coins of Apollodotus.

"Likewise a round copper coin of Myas, on the rev. a figure in the act of moving, the head surrounded by a glory or disc. I have other coins which I believe to be quite new, but such numbers of novelties must have been brought to your notice within the last few years, that it may be irksome to publish so many plates, but as your journal was the first to begin, so it might wish to continue the series of Bactrian relics, which must be more or less interesting, serving as so many links to fill up gaps in the interrupted history of that very interesting period following on the Asiatic conquests of the great Macedonian.

"I have a variety of gems, intaglios, with very interesting devices; but as some bear, I am inclined to think, a decided stamp of Persian origin, it is possible that they may have been brought thence to the Punjab; some, however, are purely Grecian, others with heads of Sassanian kings, one or two with legends; and one has a perfect representation of Layard's Nineveh Bull king. Come from where they may, they are evidently antiquities of more than ordinary interest.

"I have a very good collection of Sassanian coins, but am unable to read the legends: could you assist me with the Zend alphabet?

“One gem is interesting as having a small fire altar, and instead of the attendant Zoroastrian magi, on each side is a Pegasus or winged horse, emblematic I suppose of flight to heavens.”

Bábu Rájendralál Mittra thought Capt. Hay's Euthydemus to be no novelty, nor did his Antimachus appear to be uncommon. The only peculiarity noticed by Capt. Hay was the legend on the obverse Diodotus Soter; this, however, was far from being distinct on the drawings, and it would be venturing too much to found upon it an argument against the identity of Diodotus and Theodotus, even if the authenticity of the coin had not been questionable.

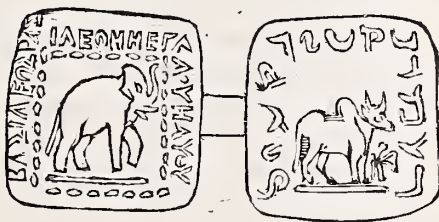
The two Myas, he believed to be new, and suggested that they should be figured in the journal.*

5. From Bábu Rádhánáth Síkdár forwarding copy of a Meteorological Register kept at the Surveyor General's office, Calcutta, for the month of May last.

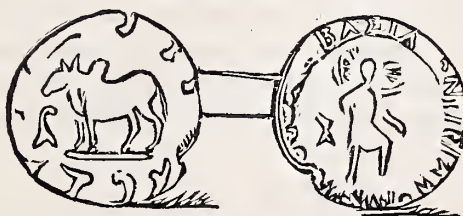
6. From Mr. Assistant Secretary Oldfield enclosing copies of Meteorological Registers kept at the Office of the Secretary to the

* The following are copies of Capt. Hay's figures.

No. 1.



No. 2.



Government of N. W. P. Agra, for the months of May and June last.

7. From Col. Birch, Secretary to the Government of India in the Military Department, forwarding three reports from the Messrs. Schlagintweit on the progress of the Magnetic Survey.

Mr. Samuells, at the request of the Chairman, after giving a slight sketch of the Physical and Political Geography of the Tributary Mehals, proceeded to read the paper submitted at the last meeting on a singular forest tribe inhabiting these districts,* and read the following letter from Lieut. Macdonald, Madras Army, Inspector of Schools in the Northern Circars, in reference to some other little known tribes of central India.

“The Coorumbas are a race of savages inhabiting the jungles of Wynaad in the district of Malwar, and also certain parts of Coorg. The men are black, of diminutive stature, and have woolly hair, but do not resemble negroes in any other respect. They are often employed in felling trees in the coffee estates, on which occasion they always have their women in the jungle. They act as shikaris and guides to elephant hunters. They are extremely active and climb trees like monkeys. In Wynaad they live in small huts mostly constructed of bamboos and grass. In Coorg they live in trees. The men are great shikaris and are very fond of spirits and tobacco. The women wear nothing round their waists but a few leaves. These details I have from McNeill and Penny, both of whom have often seen these people; most probably some account of them has been published, but I do not know where. Pharaoh does not, as far as I can see, give any account of them in his *Gazetteer of Southern India*. Perhaps an account may be found of them in the *Madras Library Journal*, but I cannot refer to it.

“There is also a race of savages who inhabit the jungles of Masulipatam and Guntoor, where they are known by the name of Chinchoo. My informant, a native (formerly a tehsildar in that part of the country) says that the women sometimes, but not always, wear leaves round their waists and on the upper part of their person.

* This paper appeared in *Journal* No. 4.

“ On looking through Pharaoh's Gazetteer, I have come across the following account of a somewhat similar race at page 546.

“ Twenty years ago females of a degraded caste of Koliers used to come into Mangalore with no covering, other than some thick branches of a bush tied to their waist in front and the same behind; they have now substituted a cloth for the leaves in front.”

On the motion of the chairman, the thanks of the meeting were voted to Mr. Samuells for his very interesting account.

Dr. Spilsbury read the following note drawn up by Major Hogge, Artillery, and forwarded by the Superintending Surgeon, J. Row, Meerut.

“ Parhelia were visible at about 5 P. M. and lasted for nearly an hour. The atmosphere was hazy and apparently surcharged with moisture, with several cumuli and nimbi floating about. A quarter of an inch of rain had fallen during the day.

The inner arc formed a complete circle with prismatic colours faintly marked. The Parhelia were in number two, North and South of the true sun in this inner arc.

The outer arc was not quite perfect, being broken by clouds; but in such portions as were visible, the prismatic colours were much clearer marked, than in the inner one.

The Parhelia were luminous spots about the size of the true sun, and resembled it, as if seen through a thick fog.

There were no tangential arcs or any other luminous spots than those described.

The Librarian and the Curator of the Zoological Department submitted their usual monthly reports.

Major Thuillier begged permission to make an announcement to the meeting which he was aware, ought properly to have been previously submitted through the Council, but he thought, that the importance of the subject, and the entire absence of any reference to matters of previous discussion, or on which a difference of opinion would be likely to arise, would justify a departure from the ordinary rule and if it was the pleasure of the meeting, he would proceed.

The fact he had it in his power through the kindness of his friend Colonel Waugh to announce, was the discovery of a mountain in the Himalayan Range, the measurement of which by the Great

Trigonometrical Survey of India under Colonel Waugh, Surveyor General of India, assigned it a place above that of any previously ascertained height in this range, already supposed to boast of the highest known mountain in the world.

It would be remembered that for many years the famous mountain of Dewalagiri in Nepal, in Latitude $28^{\circ} 41' 48''$, and Longitude $83^{\circ} 32' 8''$ originally measured by the late Captain W. S. Webb, and described in the *Asiatic Researches*, Vol. XII., was considered to be the highest mountain in the world. This was found by the operations of the Great Trigonal Survey to be 26,826 feet above the sea level, but the further discoveries of Colonel Waugh, in 1847, proved Kanchinjinga in Sikkim, in Latitude $27^{\circ} 42' 8''$ and Longitude $88^{\circ} 11' 26''$ to be much higher, viz. 28,156 feet, or 1,330 ft. above Dewalagiri.

Since that period the computations of the positions and elevations of all the principal peaks of the stupendous Himalayas from Assam to the Sufed Kho, comprising $18\frac{3}{4}$ degrees of Longitude, have been provisionally completed, and Colonel Waugh purposes to make the subject one of special report for publication, as soon as all the computations have been scrupulously revised and every refinement of correction introduced. This revision which cannot materially modify the results, has proceeded to some extent, sufficient to assign the final values for the peak designated XV. of the Trigonal Survey, and which place it in N. Latitude $27^{\circ} 59' 16''\cdot7$ and $86^{\circ} 58' 5''\cdot9$ Longitude E. of Greenwich, with an elevation of 29,002 feet above the sea level, or 846 feet above Kanchinjinga, and 2,176 in excess of the far famed Dewalagiri.

This position is almost due North East of Katmandoo, distant about 100 miles, and almost midway between Kanchinjinga and that place, *i. e.* Katmandoo, and within a few minutes of the same parallel as the former, and according to the latest and best map very nearly on the meridian of the town of Bhaugulpoor.

Colonel Waugh mentioned in his letter, that it was his rule and practice to assign to every Geographical object its true local or native appellation, but here was a mountain most probably the highest in the world without any local name, that he could discover; whose native appellation, if it has any, would not very likely be

ascertained before we are allowed to penetrate into Nepal, and to approach close to this stupendous snowy mass. Consequently, in the mean time the privilege as well as the duty devolved on him to assign to this lofty pinnacle of our globe a name whereby it may be known among geographers, and become a household word among civilised nations, and in virtue of this privilege and in testimony of his affectionate respect for a revered chief, in conformity with what he believed to be the wish of all the members of the Scientific Department over which he had the honor to preside, and to perpetuate the memory of that illustrious master of accurate geographical research, he had determined to name this noble peak of the Himalayas "*Mont Everest*."

Major Thuillier further briefly explained, the mode by which these snowy and distant peaks had been laid down by the operations of the Government Survey, from the base survey of Sonakhoda in the Purneah district, near the Darjeeling hills, along the principal triangulation of the Great N. West longitudinal series, traversing the Tirai Frontier and passing through Kumaon to the Dhera Doon Base, and shewed that the independent results of all the observations of *Mont Everest* were most satisfactorily accordant; in fact the accordance of the independent heights of this point is closer than could have been expected, because the mountain, though lofty and massive, is not a sharp well defined peak, and was observed from great distances.

Major Thuillier anticipated that when the memoir or account of all these snowy peaks, stated by Col. Waugh to be in preparation with special reference to publication, was received, the Society would derive no small pleasure and satisfaction from such an interesting subject, and he hoped to be able to lay it before a meeting with a map which would serve to illustrate and explain the whole subject. This being merely a preliminary announcement for which the Society were indebted entirely to Colonel Waugh, it was not perhaps necessary to enter into more minute details on this occasion.

The thanks of the meeting were voted to Major Thuillier.

Curator's Report for the August Meeting, 1856.

In my report for this evening, I record the donations which have accumulated for some months past.

1. Dr. J. R. Withecombe, B. Med. S. Three human skulls, respectively of a Limbu, Bhutiá, and Lepchá. "All are males," writes Dr. Withecombe, "and authentic; as I knew the individuals while living, and consider them good average specimens of the tribes to which they are referred."

2. Lt. F. P. Bailey, 7th N. I. Skin of a Hunumán Monkey (*PRESBYTIS ENTELLUS*).

3. Capt. S. R. Tickell, Moulmein. Skins of four species of Bat, viz. *DYSOPUS PLICATUS*, *RHINOLOPHUS MINOR* (?), *HIPPOSIDEROS DIADEMA* (?), and *H. LARVATUS*. Also a specimen of *DRACO MACULATUS*.

4. C. Hollings, Esq., Gya. Skull and greater portion of the skeleton of a Dingo, or Australian *variety* of Dog.

5. Arthur Grote, Esq. C. S. The skins and skeletons of a mature female, and male $\frac{1}{3}$ grown, of the ordinary 'Wild Dog' (so called) of this country, from Chaibasa, Central India. These animals are specifically identical with a particularly fine living adult male in my own possession, sent down from Upper Asám; and this appears to be the ordinary species alike of the Himaláya and of Central and S. India,—*CANIS DUKHUNENSIS*, Sykes, and *C. primævus*, Hodgson; and a Malayan specimen in our museum, which I take to be *C. SUMATRENSIS*, Hardwicke, would appear to differ only in the considerably deeper tint of its rufous colouring.

6. Messrs. Cook & Co., Calcutta. Another fresh carcass of a 'wild Dog,' procured in the vicinity of Darjiling; and which, as I am assured, was considered by Mr. B. H. Hodgson as a peculiar species, quite new to him. I saw it many times alive: and certainly in its actions and general appearance, it differed very considerably from the living animal from Asám which I at this time possess, which latter is obviously identical in species with Mr. Grote's animals from Central India, now dead and added to the museum. This particular Darjiling individual (a female) had a considerably more *Vulpine* appearance; with longer and softer fur, having much wool at base; considerable ruff around the neck, and much lengthened fur about the *jowl*; the ears also densely clad both externally and within, and, in the living animal, often very closely approximated and directed forward; a remarkably full brush, with much less black than usual on the terminal half, but most of the tail having a slightly nigrescent appearance, not particularly noticeable at a little distance: all this may merely indicate the winter vesture, as assumed in a cold climate; but the actions of the animal were decidedly peculiar, and the general appearance as *Vulpine* as that of the ordinary 'Wild Dog' is Jackal-like. It was particularly light, agile, and graceful in its movements. Still I can

discover no distinction in the skull, or in the rest of the skeleton; excepting that the metacarpal bones of the Darjiling specimen are conspicuously shorter; whereas, compared with the Dingo skeleton, which in all respects is that of a domestic Dog, the distinctions are great and manifest. Upon present evidence, I can only regard it as a specimen of *C. DUKHUNENSIS*, in winter vesture, as developed in a cold climate; and the Malayan race appears also to be identically the same, only much deeper in colouring. In this case, the various names are unfortunate, *primævus* as implying it to be the origin of any domestic variety, and others as of restricted local application; and *CANIS* (or *CUON*) *RUTILANS* of Temminck is by far the most suitable appellation that has been suggested for the species, supposing it (as I believe it to be) identical in India at all elevations and in the Malayan peninsula and archipelago. In Burma it would appear to be particularly numerous.

7. Dr. David Scott, of Hansi. Three skins of Cats, sent as those of three species of wild Cats inhabiting that part of India. One is the ordinary *FELIS CHAUS*; another a *melanoid* variety of the same (doubtless that indicated by Mr. Theobald in XXII, 582); and the third is a little known species which I identify as

FELIS ORNATA, Gray (founded on an exceedingly bad coloured drawing, obviously by a native artist, published in Hardwicke's 'Illustrations of Indian Zoology'); *F. servalina* apud Jardine, *Nat. Libr., Felineæ* (nec *F. servalina*, Ogilby); *F. ad Oxam*, Pallas (apud Gray); *F. Huttoni*, nobis (founded on a skin from the Hazára hills); *Chaus servalina*, Gray, *Brit. Mus. Catal.* This wild species approximates very nearly to the domestic Cat. The ground-colour of the fur is a "Cat-grey," more or less fulvescent; or better described as pale greyish-fulvous in some specimens; with numerous roundish black spots, which tend to unite into transverse bands on the sides: on the head, nape and shoulders, the spots are smaller and less distinct, and tend to form longitudinal lines on the occiput and nape, but not upon the back: on the limbs there are distinct cross-bands, with one or two broad black streaks within the arm, as in the Chaus and commonly in domestic Cats; the paws blackish underneath: check-stripes as usual: breast spotted, but the belly almost free from spots: tail tapering more or less distinctly, and marked with a series of well defined rings and a black tip: ears externally dull rufous, with a slight but distinct duskyish pencil-tuft at tip,—not black-tipped as in the Chaus, nor is their rufous colour nearly so bright as in that animal, differing little from the general hue of the body: the fur, according to locality or perhaps season, is more or less dense or full; and the markings are much brighter and more distinct in some individuals than in others.

“If the Chaus is a wild species,” remarks Dr. Scott, “so also is this spotted Cat; and for one Chaus in this district [Hansi], probably you would find ten of the spotted kind. The Chaus, you will find in woods and jungle, and about stations; but the spotted Cat seems to be found invariably in open sandy plains, where the field Rat must be its principal food. I hardly ever remember seeing it in what could be called jungle or even in grass. One of these spotted Cats lived for a long time under my haystack, and I believe it to have been the produce of a tame Cat by a wild one.* I have also lately seen two or three domestic Cats spotted precisely like the skin I sent you: they have generally some white about them; but doubtless there are some without white. The wild I have seen of half a dozen shades of colour; and you also frequently see in these spotted Cats a tendency to run to stripes, especially upon the limbs.”

On comparing the skin now sent with Gen. Hardwicke's figure, I feel quite satisfied that this is the species intended; although the figure is most misleading, and gives the idea of a totally different animal; indeed it might pass for a bad representation of the S. African Serval! The spots are too round and not sufficiently numerous; and the clavate form of the tail is wrong altogether. Nevertheless, I follow Sir W. Jardine in referring that exceedingly bad figure to the present species, in opposition to the more recently expressed opinion of Dr. Gray; and it is not at all probable that anything more like it remains to be discovered in this country. The figure in the 'Naturalist's Library' is better, and at once recognizable; but the tail is much too long, and the whole might bear a warmer colouring with advantage. It by no means represents a handsome example of the species.†

* *Vide* XVII, 247 and 559, for notices of *F. CHAUS* and *F. RUBIGINOSA* interbreeding with domestic Cats.

† Of two supposed wild types of the domestic Cats of India, obtained by Mr. Theobald in the Punjab Salt Range (two specimens of each of them), neither can be referred to the *F. ORNATA*: they have much more the appearance of domestic Cats; and so they undoubtedly would have, were they really two aboriginal types which are still strongly indicated by the domestic Cats even of Bengal.

One is the streaked or spotted type, the colouring and markings of which are not much unlike those of the European wild Cat (*F. SYLVESTRIS*, Brisson); only more distinct, and the transverse streaks are more broken into spots, especially towards the hinder part of the body: the fur, however, is short, and the tail slender and of uniform apparent thickness to the end; shewing a series of rings and a black tip: ears slightly rufescent externally, but infuscated, passing to black at tip, where

To Dr. Scott I am further indebted for information regarding the small desert Fox with white-tipped brush (*VULPES LEUCOPUS*, nobis, XXIII, 729). This animal is common in the neighbourhood of Hansi during the cold weather only, and very rarely seen there at other seasons: whereas

there is a distinct small pencil-tuft of black hairs: paws deep sooty-black underneath. I lately saw, at Alláhábád, an exact counterpart of this alleged wild race in a domestic Grimalkin; but, in general, the domestic Cats of this type, about Calcutta at least, are greyer, with the spots smaller and more numerous.

The other type much resembles *F. CHAUS* in colouring, but does not at all approximate that animal in its proportions: it is much smaller than the Chaus, with proportionally shorter limbs, smaller ears, and much longer tail, which last distinctly tapers at the extremity. Consequently, it exhibits no tendency to the *Lynx* form and character, so conspicuously manifest in the Chaus. The body is uniformly grizzled "cat-grey," more or less rusty or fulvescent, without a trace of spot or stripe, such as may generally be discerned faintly in the Chaus: but the bands on the limbs are much more distinct than in that animal, those of the tail equally so; and there are the usual marks on the forehead and cheeks (much confused albeit on the former), and a dark band across the chest: lower-parts more or less whitish or tinged with fulvous, and marked with blackish or brown-black spots: ears dull rufous behind, with a slight blackish tip and no pencil-tuft of hairs: the paws more or less sooty underneath. Domestic Cats of this type abound in Bengal, if not generally over India: but such a coloration is utterly unknown among those of Europe: and the proper tabby markings (pale streaks on a black ground, peculiarly and symmetrically disposed), so very common in English Cats, are never seen in those of India! The tabby may be a modification (and a very remarkable one) of the markings of the wild *F. SYLVESTRIS* of Europe, a result of domestication: but most assuredly the Chaus-coloured cats of India would seem to indicate an aboriginally wild stock of that colour, no doubt inhabiting the country somewhere: but if a truly and aboriginally wild specimen were to turn up, it would merely be regarded as a stray member of the domestic race, and so an end to all enquiry.

The only guide to a probably correct result would be the fact, that such an animal might inhabit a vast range of country, away from human haunts, without exhibiting the variation of colour everywhere observable in the domestic races; unless in neighbourhoods where it might inter-breed with the latter, which would pass for nothing: though to such neighbourhoods it would doubtless be attracted, just as the Chaus is! The question then remains—Do two such Feline types exist, or either of them, in an aboriginally wild state, in any part of India, as have just been described, and both of which are said to be found wild in the Punjab Salt Range? The difficulty of tracing the origin of many of our domestic animals is well known. I have no doubt that several species have contributed to produce the

V. *BENGALENSIS* is equally abundant at all times of the year. I also learn that V. *LEUCOPUS* is plentiful on the line of march from Ludiána to Ferozepore; and in Cutch there would seem to be no other. Yet so common and widely distributed a species has only been quite recently

tame Cat, one or another predominating in different countries; as *F. SYLVESTRIS* in Europe, *F. MANICULATA* perhaps in N. E. Africa, and besides the two presumed types above mentioned, *F. CHAUS*, *F. ORNATA*, and *F. RUBIGINOSA* have been known to interbreed with domestic Cats in this country: probably also *F. MANUL* in middle Asia, *F. PLANICEPS* in the Malay countries, and *F. CAFRA* in S. Africa! Indeed, I find that examples of the hybrid from *F. CAFRA* are in the British Museum.

Mr. Hodgson, in the 1st Volume of the Society's Journal (p. 341), observes, of the domestic Cat in Nipál, that—"judging from its markings, I should conjecture that it is derived from the *Felis nipalensis*," i. e. *F. BENGALENSIS*; "if so, it has lost by domestication the fine ground-colour of that beautiful species." Now Pennant's original description of the *F. BENGALENSIS* was drawn up from a specimen which was taken alive to England, where "it coupled with the female Cats, which twice produced young: I saw," remarks Pennant, "one of the offspring, which was marked in the same manner as the male parent; but the ground-colour was cinereous." Such a hybrid or hybrid-race I believe to be represented by the *F. nipalensis* of Vigers, described in the 'Zoological Journal,' probably from a Nipalese domestic Cat; and perhaps by other of the very numerous synonymes which may be referred to *F. BENGALENSIS*.

The *F. MANICULATA* is stated by de Blainville to have the first deciduous inferior molar broader than in the European Cat, tame or wild, and attached to the socket by three roots or fangs: an extraordinary peculiarity throughout the genus!

In the Indian tame Cats of either type, it has two fangs only, as usual; and all the teeth are much smaller than in the European wild Cat (*F. SYLVESTRIS*). I believe the latter to have contributed to the formation of the tame race of Britain, but not to be the sole origin of the latter. But however this may be, nobody will suspect that *F. SYLVESTRIS* is a wild type to which the tame Cats of India can be referred in any degree! Then whence the origin of the latter? It would appear that several wild species intermingle with them even now; as does *F. SYLVESTRIS* with the tame Cats of the Scottish Highlands. Thus Sir W. Jardine, while supposing the domestic Cat to have derived from *F. MANICULATA*, remarks—"We have no doubt that since its introduction to this country, and more particularly to the north of Scotland, there has been occasional crossing with our own native species, and that the result of these crosses have been kept in our houses. We have seen many Cats very closely resembling the wild Cat, and one or two that were very tame, which could scarcely be distinguished from it." But such are never seen in the southern parts of England, where we may look in vain for the peculiar hold wavy streaks and the thick untapering tail of *F. SYLVESTRIS*. Still,

described; and its co-habitant the *FELIS ORNATA* is now fairly made known for the first time! No doubt there is yet much to learn respecting the smaller *Vertebrata* of the same region.

8. Capt. E. T. Dalton, Dibrughur, Asám. The skull of a fine male of the *BUDORCAS TAXICOLOR*, Hodgson.

9. Sir J. Barlow, Bart., C. S. Skull and horns of a fine male wild Buffalo.

10. Capt. P. Jenkins, Madras Service, Ságur. Series of caudal vertebræ of a cow Gaour (*BOS GAURUS*), required to complete a skeleton in the museum.

11. C. Brownlow, Esq. The half of a remarkable 'bezoar,' obtained from the stomach of a domestic bull, which had managed to munch down a couple of rough country blankets: no uncommon propensity on the part of domestic cattle. This bezoar, finely illustrative of the rotatory action of the stomach, is $5\frac{1}{2}$ in. in diameter.

12. J. E. Bruce, Esq., Chittagong. Three entire specimens in spirit, and a skin, of *EURINORHYNCHUS PYGMÆUS*.

Here may be remarked, that, in a collection of bird-skins from Bombay, sent on inspection by Dr. G. Buist, on behalf of the Bombay branch of the Royal Asiatic Society, the only novelty I can find is the *PARUS XANTHOGENYS* of Dr. Jerdon's catalogue, for which I propose the name

P. JERDONI, *n. s.* It much resembles *P. XANTHOGENYS*, Vigors, of the N. W. Himalaya; but is conspicuously larger, having the back less tinged with yellow, the yellow portions of the plumage not so intense in hue, and the yellow sincipital streak is not continued forward over the eye, as in *P. XANTHOGENYS* (*verus*). Length of wing 3 in.; and of tail $2\frac{3}{8}$ in.: in *P. XANTHOGENYS* the wing varies from $2\frac{1}{2}$ to $2\frac{3}{4}$ in., and the tail measures $2\frac{1}{8}$ in. This is the third species which has now been discriminated apart from *P. XANTHOGENYS*, Vigors; the others being *P. SPILONOTUS*, nobis, from Nipál, Sikim, the Khásyas, &c.,—and *P. SUBVIRIDIS*, Tickell, nobis, from the mountainous interior of the Tenasserim provinces. I

as compared with any Indian tame Cat, the affinity of an ordinary British Cat to *F. SYLVESTRIS* is manifest; and due, I suspect, to frequent intermixture at a time when the tame Cat was first introduced into Britain and continued rare, while the wild species was far more abundant than at present; an indelible impress of the native stock having been then effected, which may have gradually diffused itself throughout the domestic race in Britain and neighbouring countries. This much, at least, appears to be quite clear, that several wild species have contributed to produce the domestic Cats of different regions.

have further distinguished *T. RUBIDIVENTRIS* of Nipal and Sikim from *P. MELANOLOPHUS*, Vigors, of the Simla and Masuri mountains; with which the *P. MELANOLOPHUS* of Jerdon's catalogue still requires to be critically compared.

Another bird-novelty is a strongly marked species of Parrakeet, which I procured and kept for some time alive; but the specimen is now added to the museum.

PALEORNIS VIRIDIMYSTAX, nobis. Size about that of *P. MALACCENSIS*; closed wing 6 in. Colour bright golden-green, the green deeper than usual in this genus, with light indigo-blue on the primaries and tail: axillaries, and fore-part of the wing underneath, bright yellow: a broad band of peach-blossom red below the eye, from bill to middle and lower portion of ear-coverts; rest of the latter green tinged with verditer; moustachial streak as in *P. MALACCENSIS* and others, but of a *darkish green* hue, contrasting with the more yellowish green of the body: a slight pale duskyish streak also from nostril to eye; and small red spot above the eye (conspicuous in the living bird). Bill duskyish in the individual, but with the upper mandible doubtless coral-red in the adult. Irides dark greenish-hazel, surrounded by a white ring. Feet pale greenish-grey. *Habitat* unknown.

As an interesting acquisition to our bird-collection, may also be mentioned a fine specimen of the great Black Cockatoo of N. Guinea (*MICROGLOSSUM ATERRIMUM*?*), which was brought dead, affording the opportunity of examining it fresh. This bird is remarkable for its enormous beak, and the great 'tooth' or process on the upper mandible; but its tongue is not particularly small, as the generic name imports. The figure in Edwards's 'Birds' gives a better idea of the species than any other which I have seen.

Some recent observations lead to the opinion that the great Sulphur-crested White Cockatoo of N. Guinea is distinct from that of N. S. Wales. A fine living specimen of the latter (*CACATUA GALERITA vera*) entirely corresponds with Mr. Gould's figure of the species in the 'Birds of Australia,'† having the bare skin surrounding the eye pure white, or with an

* I am aware that two species have been discriminated; but not of their distinctions.

† "If," remarks Mr. Gould, "we regard the White Cockatoo of Van Diemen's Land, that of the continent of Australia, and that of New Guinea as mere varieties of each other, this species has a more extensive range than most other birds. It is an inhabitant of all the Australian colonies, both on the southern and northern coasts, but has not yet been observed on the western.

exceedingly faint (barely perceptible) pink blush; and no naked space surrounding the base of bill. Closed wing measuring (in a specimen in our museum received from the Sydney Institution) 14 inches. This fine bird is not often to be seen on sale with the Calcutta dealers. Another, however, is commonly to be obtained here, which I have reason to believe is from N. Guinea or its neighbourhood: this is smaller, with a considerable circlet of bare skin of a blackish colour surrounding the bill, and the naked space around the eye is conspicuously of a *pale verditer* hue, more or less deep; a peculiarity which catches the eye at the first glance: the loreal plumes being reduced to quite a narrow line. Closed wing (in a specimen in our museum) only 12 inches. If still unnamed, it may be designated *C. CYANOPIS*, nobis.* A third, which I take to be *C. CITRINO-CRISTATA*, Fraser, is again smaller, with considerably smaller and more compressed beak, and particularly fine crest; closed wing, in a female specimen in our museum, only $10\frac{1}{2}$ in.; but in a remarkably fine male, were its wings not mutilated, at least 1 in. more. The habitat of this species is unknown; and its beak is much more compressed than in the

“On a close examination of specimens from the three countries above mentioned, a decided difference is observable in the structure of the bill, but of too trivial a character, in my opinion, to warrant their being considered as distinct; in fact, it would seem to be merely a modification of the organ for the peculiar kind of food afforded by the respective countries [rather a bold Lamarckian suggestion!] The Van Diemen's Land bird is the largest in every respect, and has the bill, particularly the upper mandible, less abruptly curved, exhibiting a tendency to the form of that organ in the genus *Limictris*: the bill of the New Guinea bird is much rounder, and is, in fact, fitted to perform a totally different office from that of the White Cockatoo of Van Diemen's Land, which I have ascertained, by dissection, subsists principally on the small tubers of the terrestrial *Orchidaceæ*, for procuring of which its lengthened upper mandible is admirably adapted; while it is more than probable that no food of this kind is to be obtained by the New Guinea bird, the structure of whose bill indicates that hard seeds, nuts, &c., constitute the principal portion of its diet. The crops and stomachs of those killed in Van Diemen's Land were very muscular, and contained seeds, grain, native bread (a species of fungus), small tuberous and bulbous roots, and, in most instances, large stones.”

Surely the differences are not much greater upon which Mr. Gould founds several of his species of Black Cockatoo (*CALYPTORHYNCHUS*), &c. &c.

* Behind the crest is a space bare of feathers in all Cockatoos; and the skin there is pale pinkish in *C. GALERITA*, and much darker and tinged with blue in *C. CYANOPIS*.

common *C. SULPHUREA* of Timor, the closed wing of which measures only 9 in.; and which is readily distinguished by its much shorter crest, and by the deep yellow spot on the cheeks. The last is by far the commonest species in the Calcutta bird-bazar, and sells at a much lower price than the others. I have seen an individual variety of it, having the crest of a bright flame-colour.

Here also I may notice a remarkable species of Pelican, which is now living in the menagerie of the Máharája of Burdwán, in company with specimens of *P. JAVANICUS* and *P. CRISPUS*. It is generally similar to *P. JAVANICUS*, but has the frontal skin curiously inflated, so as to present somewhat the appearance of a largely developed frontal knob of *ANSER CYGNOIDES*, only feathered; and a further difference consists in the naked skin of the cheeks and pouch being yellowish-white, whereas in *P. JAVANICUS* that of the cheeks is deep purplish or livid-carneous, and of the pouch intense yellow. If distinct and new, *P. INFLATIFRONS*, nobis.

Lastly, I may here notice that in the beginning of last April, I procured a fresh specimen (from the vicinity of Calcutta) of *CYORNIS BANYUMAS*, (Horsfield); a well known Javanese bird, only once known to have been procured before in India,—viz. by Mr. Jerdon in the Nilgiris, his specimen being also now in the Society's collection. The Calcutta specimen is a young male, that had just assumed the plumage of maturity; but still retaining some of the first or nestling wing-coverts.

13. Capt. Berdmore, Schwe Gyen, Pegu. A number of living Tortoises, comprising several specimens of *TESTUDO ELONGATA*, nobis, remarkable for the yellowish-white colour of the head and neck.

14. T. C. Jerdon, Esq. Ságur. A bottle of reptiles, comprising one remarkable new species, which may be described as a *CALOTES*, with enormous head, short and thick body, the tail not exceeding the body in length, and the toes also short and strong; a slight nuchal crest, and medial dorsal ridge composed of a row of high-keeled scales; two detached tufts of sincipital spines, one contiguous to the tympanum, and each comprising one principal spine. Colour olive, with a row of large round dark spots, bordered and set off with white, along the back and anterior half of the tail, continued as simple indistinct dark spots to the end of the tail; the white broader and forming a kind of pale spot on each side of the neck; and anterior to this first large spot is a small one upon the crest: lower-parts yellowish-white, the throat regularly speckled with pale dusky: a conspicuous oblique white band passing from beneath the eye to the angle of the mouth. Scales of the body in transverse bands, the oblique tendency much less conspicuous than in *CALOTES*. I shall

describe this species more minutely by the name *BRACHYSAURA ORNATA*.

15. Dr. M'Connor. A bottle of scorpions and centipedes.

16. From the Madras museum. A few fine specimens of *CRUSTACEA*, comprising *OCYPODA BREVIROSTRIS*, *GELASIMUS ANNULIPES*, and one or two other Crabs new to the Society's collection.

E. BLYTH.

LIBRARY.

The Library has received the following additions during the month of July last.

The White Yajurveda, edited by Albrecht Weber, part III. No. 1, Berlin, 1856, 4to.—BY THE EDITOR.

Mālavikā und Agnimitra, Ein drama des Kālidāsa in fünf Akten, zum ersten Male aus dem Sanskrit übersetzt von Albrecht Weber, Berlin, 1856, 12mo.—BY DR. A. WEBER.

Ueber den semitischen Ursprung des indischen Alphabetes von Dr. A. Weber.—BY THE SAME.

Selections from the Records of the Government of India, No. XII. Report shewing the relations of the British Government with the tribes, Independent and Dependent, on the North-West Frontier of the Punjab, from 1849 to 1855.—District Memorandum, Derah Ishmael Khan. *Calcutta*, 1856.—BY THE GOVERNMENT OF INDIA.

Ditto ditto ditto, No. XIII. Progress Report of the Public Works Department, for 1854-55.—BY THE SAME.

Ditto ditto ditto, No. XIV. Minute of Lord Dalhousie.—BY THE SAME.

Report on the Survey Operations of the Lower Provinces, from 1st October 1853 to 30th September, 1854.—BY THE GOVT. OF BENGAL.

Ditto ditto of the ditto from 1st October, 1854 to 30th October, 1855.—BY THE SAME.

Selections from the Records of Government, N. W. P. Part XXVI. Saugor Code of Civil Judicature. BY THE GOVERNMENT OF THE N. W. P.

Annual Report of the Grant Medical College, Bombay, Tenth year Session, 1855-56.—BY THE PRINCIPAL OF THE GRANT MEDICAL COLLEGE.

Proceedings of the Royal Asiatic Society, Vol. VIII. Nos. 19 and 20, two copies.—BY THE SOCIETY.

Ditto of the Royal Geographical Society of London, from January to April, 1856.—BY THE SOCIETY.

Transactions of the Bombay Geographical Society, for 1856.—BY THE SOCIETY.

The Oriental Christian Spectator, for June, 1856.—BY THE EDITOR.

The Calcutta Christian Observer, for July, 1856.—BY THE EDITORS.

The Oriental Baptist, for July, 1856,—BY THE EDITOR.

Upádesák, for July, 1856, No. 115.—BY THE EDITOR.

The Durbin Newspaper.—BY THE EDITOR.

History of Asiatic Cholera Morbus: by Dr. F. Baleguer, Agra, a pamphlet.—BY MR. BLYTH.

Exchanged.

The Athenæum, for April, 1856.

The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, No. 73, for May, 1856,

Purchased.

L'Athenæum Français, Nos. 13 to 17.

The Literary Gazette, Nos. 8 to 11.

Comptes Rendus, Nos. 12 to 16, Tome XLII.

Revue des Deux Mondes, for April and May, 1856, pt. I. Vol. I.

Revue et Magasin de Zoologie, No. 3, 1856.

Annales des Sciences Naturelles, Tome 4, No. 4.

The Annals and Magazine of Natural History, No. 101, Vol. 17.

The Edinburgh Review, No. 210, for March, 1856.

The Quarterly Review, No. 196.

GOUR DOSS BYSACK,

Asst. Secy. and Librarian.

FOR SEPTEMBER, 1856.

At a monthly general meeting of the Society held on the 3rd instant, at the usual hour.

Hon'ble Sir James Colville, Kt., President in the chair.

The proceedings of the last meeting were read and confirmed.

Presentations were received—

1.—From Lieut. R. Stewart, Cachar, a collection of arms, weapons, ornaments, and other articles manufactured and used by the tribe called Thadous or Kookies, a list of which is subjoined.

No. 1.—A dhao, or sword, with leather sheath, shoulder belt ornamented with cowries, and tassels of goat hair.

Nos. 2, 3 and 4.—Spears of three different kinds.

No. 5.—Spear used by the women.

No. 6.—Spear-head and case. This spear-head is poisoned, and

is fastened on a long shaft and used in hunting elephants.

No. 7.—Bow.

No. 8.—Arrows, poisoned and unpoisoned in quiver.

No. 9.—Hunting basket to contain quivers of arrows, with shoulder belt ornamented with cowries.

No. 10.—Panjies or spikes for planting in the ground to check an advancing enemy, in a basket or quiver.

No. 11.—Shield; leather with brass plates and red-dyed goat's hair tassels.

No. 12.—Powder-horn, of the methin or wild cow.

No. 13.—Leathern mail-coat.

No. 14.—Iron head-piece, to defend the head; round this is bound the turban, strap, and ribbon.

No. 15.—Turban, ornamented with a tuft of the feathers of the Holapakee bird. The tuft sticks out in front of the forehead.

No. 16.—Turban ribbon, of red-dyed goat's hairs. This is bound round the turban as ornament.

No. 17.—Turban strap, of leather ornamented with cowries, also bound round the turban and serving to keep it attached to the head.

Nos. 18, 19 and 20.—Plumes of feathers and goat's hairs stuck in the back-knot of the hair of the head.

No. 21.—A man's hair-pin, used also as a pipe-prick or tobacco stopper—a porcupine's quill is often substituted for the iron pin.

No. 22.—A woman's hair pin—brass.

No. 23.—Bracelet of massive ivory, worn on the wrist of the left hand, as a guard to prevent the bowstring hurting that hand, when released by the fingers of the right in shooting.

No. 24.—Bracelet for the same purpose as the above, in wood,

No. 25.—Bracelet of massive brass, with leaden bullet inside, causing a tinkling sound when shaken. This is used as a weapon also, being in default of other arms slipped over the wrist and held in the hand to add weight to a blow.

No. 26.—Woman's bracelet, brass spring.

No. 27.—Armlet—brass spring.

No. 28.—Armlet, massive brass.

No. 29.—Armlet, formed of two semicircular boar tusks, joined.

No. 30.—Armlet, of ivory from the root of the elephant's tusk.

No. 31.—Earrings of silver, inserted into a hole bored in the lobe of the ear, and stretched to the required dimensions.

No. 32.—Earrings of brass of the same kind.

No. 33.—Ear ornaments of red and blue stones suspended from the rings.

No. 34.—Single red stone ear ornament, of great value among the tribe, suspended as above.

No. 35.—Necklace of coral beads.

No. 36.—Necklace of blue stone beads.

No. 37.—Necklace of beads made from ground shells and worn by the women.

Nos. 38 and 39.—Seed necklaces of two kinds.

Nos. 40 and 41.—Tiger's tooth and wolf's tooth worn as talismans round the neck to keep off attacks from those animals.

No. 42.—Talismanic stone, enclosed in basket carried by hunters to ensure success in sport.

No. 43.—A small box containing a little of the Kookie poison with which they smear their weapons.

No. 44.—Kookie garter, made of the goat's beard, worn below the knee.

No. 45.—Kookie woman's petticoat.

No. 46.—White cotton cloth or sheet.

No. 47.—Cotton cloth, dyed with wild indigo.

No. 48.—Cotton rug.

No. 49.—Brass wire girdle or zone for the waist.

No. 50.—Kookie bagpipes (Ghoshem) hollowed gourd with bamboo pipes.

No. 51.—Kookie bell.

No. 52.—Vessel for holding tobacco water.

No. 53.—Drinking vessel.

Nos. 54, 55 and 56.—Three different kinds of brass tobacco pipes with mouth-pieces ; used by the men.

No. 57.—Bamboo tobacco pipe.

No. 58.—Hookah used by the women, with earthen bowl, bamboo water-piece, and brass mouth-piece, together with pricker and chain.

Nos. 59 and 60.—Two flint and steel cases, one of brass, and the other of mat-work.

No. 61.—Kookie haversack, with shoulder help, ornamented with cowries.

No. 62.—Purse, cotton, net-work.

No. 63.—Kookie basket for carriage on the back.

No. 64.—Collar and strap to suspend the above from the forehead and shoulders.

No. 65.—Woman's basket for carrying light goods.

No. 66.—Fan.

Nos. 67 and 68.—Boxes, hollowed from single pieces of wood with lids.

No. 69.—Wooden platter.

Nos. 70 and 71.—Baskets with lids.

The Secretary read an extract from Lieut. Stewart's letter.

"The Kookies ask great prices for all things made of metal; immense value is also attached to ornaments of stone. The little stone No. 34, cost Rs. 10; and similar stones are often valued as high as Rs. 3000. Wherein lies the virtue of these stones it is difficult to perceive, for they cannot be distinguished, save by the Kookies themselves, from either No. 34, or the red stones in the centre of No. 33, and yet the whole of the stones composing No. 33, only cost Rs. 2."

2.—From Syud Káramt Ali Motawalli of the Emambara at Hooghly, a piece of mineral, and some specimens of red sulphur which were said to have come from the mountain Dámawánd, found seven years ago after an earthquake.

The mineral was found in the Hindu Koosh, and obtained by the Syud in Cabul.

3.—From Capt. W. H. Lowther, some specimens of earths and lime formation from Oude; which he believed would be useful for pottery purposes.

The following is Capt. Lowther's letter accompanying them.

"Thinking that even the smallest contributions may be acceptable, I forward the three enclosed specimens of earths, and lime formation from Oude, a country which I have just left. The clays

and lime were employed in building the cantonment, and from a small experiment I made, I ascertained that the first were capable of burning for pottery purposes.

Nowhere in India have I seen such hard bricks, of so fine a colour, or so lasting, as in Oude. There are forts, scattered all over the district, built of baked blocks as sound and ruddy in hue as when first constructed, although a period of 700 or 800 years has elapsed:—some of these massive materials are several cubic feet in dimensions, and, on being fractured, exhibit a fine vermilion red, with a strong saline taste. The earths I now forward are from the new station Persuddpoor on the right bank of the small river ‘Sihi,’ Salone Pergunnah.”

4.—From Mr. J. N. Payter, a book entitled Culpeper’s Complete Herbal, &c., originally published in London, 1653, and illustrative of the state of Botanical science at that period.

5.—From Major H. L. Thuillier, 28 sheets of the Trigonometrical Survey maps for the India Atlas of the Society, completing the series up to the present date.

6.—From the Curators of the Calcutta Library, a copy of the last Catalogue of the Library.

7.—From Mr. J. Nietner, the first of a series of entomological papers on the Coleoptera of Ceylon.

The following gentlemen duly proposed and seconded at the last meeting, were balloted for and elected members.

Lieut. H. S. Forbes, Artillery,
Sultan Mohammed Busheerudeen Saheb,
A. R. Young, Esq., B. C. S., and
R. B. Chapman, Esq., B. C. S.,

The Council had the satisfaction to report, that a request which they had made to the Government of India, to allow the lithographic drawings required for the Society’s Journal to be printed free of cost in the office of the Surveyor General, had been complied with, under orders communicated by Mr. Under Secretary Chapman.

The following draft of a reply to the despatch of the Hon’ble Court of Directors, on the subject of the Oriental publications, was next read.

TO W. GREY, ESQ.,

Secretary to the Govt. of Bengal.

SIR,—In reply to your letter No. 1036, dated 21st July, 1856, forwarding the copy of a despatch dated 13th May last, from the Hon'ble the Court of Directors in reference to the management of the Bibliotheca Indica, together with some remarks of the Lieut.-Governor upon the heavy liabilities of the Oriental fund, I am directed to request you to inform H. H. the Lieut.-Governor of the readiness of the Society to carry out the orders conveyed by the Hon'ble Court's despatch, in reference to the future application of their grant for the encouragement of Oriental Literature ; but at the same time to request that he will lay before them the enclosed copy of a correspondence which has lately passed between the Society and Professor H. H. Wilson, as explanatory of the principles on which the Bibliotheca Indica has, of late, been conducted.

I am further instructed to observe, in reference to the remarks of the Lieut.-Governor on the liabilities of the Oriental fund, that the progress of nearly all the works which were in course of publication was suspended some months ago, on its being found that the activity of the several Editors had pushed the publication of the series beyond prudent limits.

I have, &c.,

The letter was approved and adopted.

The Secretary made a communication on the part of the Council, in reference to the announcement made at the last meeting by Major Thuillier, of the discovery of a mountain in the Himalayan range, which the computations of Col. Waugh, the Surveyor General of India, had ascertained to be of greater altitude (29,002 feet) than Kanchinjunga or any other known height in this range, and therefore in the world.

Col. Waugh had stated in the letter by which this announcement had been made through Major Thuillier, that he had been quite unable to ascertain what was the local name, if any existed, of this mountain mass, (marked XV. in the diagrams of the Trigl. Survey) and that in the absence of such name, which he should of course have adopted, if it could had been ascertained, he assumed

the privilege, as first discoverer, of proposing a name for this the loftiest peak on the surface of the globe.

The name proposed by him was "Mont Everest."

Now it was the opinion of many gentlemen, in which the Council fully concurred, that it was very desirable, in accordance with the established practice of geographers, that the native appellation of this gigantic peak should be that, by which it is known to the civilized world, and that an endeavour should be made to ascertain this name—of the existence of which there can be little doubt—through the agency of the Nepal government or otherwise; but that in the mean time it would be in every way more appropriate and more consistent with usage, that the mountain should be called after the name of its distinguished and accomplished discoverer, Colonel Waugh, than by that of his predecessor Col. Everest, who, however great his merits and abilities, had no immediate connection with this discovery.

The Council therefore suggested to the meeting the propriety of addressing a letter to Col. Waugh, expressing a hope that he would acquiesce in this view of the subject, and allow the mountain to be called provisionally at least by his own name, instead of by that of his predecessor.

After some discussion this proposition was negatived, several members having expressed an opinion that it would not be complimentary to Col. Waugh to interfere in the matter.

Communications were received—

1.—From the Lieut.-Governor of the N. W. P. through Mr. Assistant Secretary Oldfield, copy of a correspondence on the subject of the exploration of the ruins of Sarnath, conducted during the past season under the supervision of Dr. Butler.

2.—From Babu Radhā Nāth Sikdār, forwarding copy of a Meteorological Register kept at the Surveyor General's Office, Calcutta, for the months of June and July last.

The Librarian submitted his usual monthly report.

Mr. Oldham begged to bring before the Society a coin of some interest. About a fortnight since, he had received from a friend, a silver coin, with a request that he would say what it was. Not being able to do so himself, he had applied to the best authority he

could command, and had sent the coin to the former Librarian of the Society, Bábu Rájendralál Mittra. From him he had received the note which he would read.

MY DEAR SIR,—Your coin is from Cooch Behar, and is an interesting specimen of an obscure type. On the obverse it has *Sri sri Siva charaṇa kamala madhu karasya*, “of the bee of the lotus feet of the twice illustrious Siva;” and on the reverse *Sri sri man naranārāyana bhupālasya sáke* 1477; “of the doubly blessed King Naranārāyana, in the Saka year 1477” (*i. e.* 1555 of the Christian era.) The language of the inscription is Sanskrit, and the character Bengali. According to the genealogical tables consulted by Major (now Lieut.-Col.) Jenkins, (Bengal Selections, No. 5,) Naranārāyana was the son and successor of Biswa Singh, the founder of the Cooch dynasty.

The *era* of Naranārāyana is nowhere given: at a rough guess Lieut.-Col. Jenkins assumes Biswa Singh to have lived about 300 years ago. The coin enables us to settle this point definitively.*

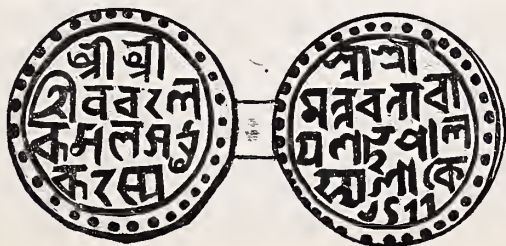
Two coins of this type have been figured by Marsden, but none of the reign of Naranārāyana; nor is his reading of the dates of his coins at all correct. He brings down Lakshminārāyana the immediate successor of Naranārāyana to the year 1727, and yet it is well known that no less than eight princes, some of very long and prosperous reigns, succeeded him, before the country came in contact with the British Government in 1772.

Yours very truly,

RÁJENDRALÁL MITTRA.

* Buchanan Hamilton, in his History of Cooch Behar, (*ante* vol. vii. p. 16) questions the accuracy of Biswa Singh's era, and adverts to several circumstances which, he thinks, seem to be irreconcilable with facts recorded by Mohammedan historians. The anachronism, however, if there be any, must be trifling as the era of Naranārāyana given by him (*loc. cit.*) accords completely with the date of the coin under notice.

The coin is figured below.—R. M.



It would be seen from this that the coin he now handed to the Chairman for the cabinet of the Society, was one of considerable interest, and of new historical value. In giving the information he had thus acquired to Mr. Tuckerman, the proprietor of the coin, Mr. Oldham had suggested that if he were not himself a collector of such objects of curiosity and interest, it would be very desirable to place this coin in some collection where it would be available to the student of history and numismatics, and he had been most liberally requested by Mr. Tuckerman to do what appeared best with the coin; he therefore had now the pleasure of presenting this silver coin to the Society, in the name of N. C. Tuckerman, Esq.

In doing so, Mr. Oldham further begged to propose that the thanks of the Society be given to Mr. Tuckerman for this interesting addition to their collection.

Col. Baker having seconded the motion, it was carried unanimously.

Dr. Thomson, at the request of the President, read a paper entitled "notes on the Herbarium of the Calcutta Botanic Garden, with especial reference to the completion of the Flora Indica."

He stated that as he had undertaken, in conjunction with Dr. Hooker, to publish a Flora of British India, he was desirous of bringing to the notice of botanists in all parts of India, that he would gladly receive specimens of plants from those desirous of contributing to the progress of the work. Specimens from all parts of India would be acceptable, the illustration of the geographical distribution being one of his main objects, but for the purpose of indicating the least known districts he read a list of the contents of the Garden Herbarium.

The best thanks of the Society were voted to Dr. Thomson for his interesting communication.

At a Special General Meeting of the Asiatic Society, held according to announcement, on the 10th September last at the usual hour.

Hon'ble Sir J. W. Colville, Kt., President, in the chair.

The question of reducing the rate of subscription to the Society from Rs. 16 to Rs. 10 per quarter, as proposed by Major Thuillier at the ordinary General Meeting of June last, was taken into consideration. The Secretary announced that twenty-six non-resident

members only out of sixty-three had replied to the circular* which was addressed to them, requesting their votes on the proposed alteration. Sixteen voted in favor of, and ten against, reduction. Such of their letters as contained remarks or suggestions, were then read, and after considerable discussion the question was put to the vote when there appeared—

	FOR	AGAINST
Residents present,	9	13
Non-residents,.....	16	10
	—	—
	25	23
	—	—

The proposition was therefore lost in accordance with bye law 45, which provides that three-fourths of the votes taken, shall be necessary to carry any proposed alteration or amendment of the rules.

The following is the List of Voters :—

FOR	AGAINST
<i>Non-resident members.</i>	<i>Non-resident members.</i>
1. Capt. F. P. Layard, Berham-pore.	1. G. H. Freeling, Esq., Orai.
2. Dr. J. Fayrer, Lucknow.	2. Dr. J. Row, Meerut.
3. Kabeeroodeen Ahmed Baha-door, Sasseram.	3. Lieut.-Col. M. E. Loftie, Al-morah.
4. Rajah Issree Persaud, Benares.	4. R. Spankie, Esq., Mussorie.
5. W. Muir, Esq., Agra.	5. Captain R. MacLagan, Roor-kee.
6. Lieut. R. Stewart, Cachar.	6. Lieut. N. W. Elphinstone, Goorgooriah.
7. Major J. Abbott, Ishapore.	7. Col. Sir A. Bogle, Moulmein.
8. Major J. C. Haughton, Moulmein.	8. Major A. P. Phayre, Rangoon.
9. J. C. Middlecott, Esq., Jubulpore.	9. Capt. S. S. Dalton, Assam.
10. Capt. H. S. Bivar, North Cachar.	10. F. E. Hall, Esq., Ajmere.
11. Major R. R. N. Ellis, Bundelcund.	<i>Resident members present at the meeting.</i>
	11. Hon'ble Sir J. Colville, Kt., President.

* This circular was accompanied by a paper containing a resumé of the Proceedings of the Society in reference to the proposed reduction.

- | | |
|---|--|
| 12. Major J. H. Hanyngton,
Chota Nagpore. | 12. Rajah Pertáb Chunder Singh,
Bahádoor. |
| 13. Capt. H. C. James, Darjeeling. | 13. Babu Jádavá Krishná Singh. |
| 14. R. H. Russell, Esq., Bogra. | 14. Babu Rajendra Lál Mittra. |
| 15. J. J. Gray, Esq., Malda. | 15. C. Beadon, Esq. |
| 16. Col. Sir H. M. Lawrence,
Abboo. | 16. Capt. C. B. Young. |
| | 17. Dr. T. Boycot. |
| | 18. Dr. T. Thomson. |
| <i>Resident members present at the
meeting.</i> | 19. Dr. H. Walker. |
| 17. Major H. L. Thuillier. | 20. Lieut.-Col. W. E. Baker. |
| 18. Hon'ble E. Drummond. | 21. Capt. H. Yule. |
| 19. Capt. W. S. Sherwill. | 22. Dr. G. G. Spilsbury. |
| 20. D. Money, Esq. | 23. W. S. Atkinson, Esq. |
| 21. Babu Radhá Náth Sikdár. | |
| 22. Revd. K. M. Banerjee. | |
| 23. T. Oldham, Esq. | |
| 24. E. A. Samuells, Esq. | |
| 25. G. Young, Esq. | |

LIBRARY.

The Library has received the following accessions during the month of August last.

Presented.

Culpeper's Complete Herbal, *London*, 1653, Royal 4to.—BY J. N. PAYTER, Esq. ZEMINDAR, DINAGEPORE.

Catalogue of the Calcutta Public Library, *Calcutta*, 1855, 8vo.—BY THE CURATOR OF THE LIBRARY.

Report on the Revenue Administration of the Lower Provinces for the official years 1853-54 and 1854-55, 2 pamphlets.—BY THE GOVERNMENT OF BENGAL.

Selections from the Records of the Madras Government, No. XXV. 1856—Report on important Public Works, for 1854, 8vo.—BY THE SAME.

An Introductory Lecture delivered in the Grant Medical College, by R. Haines, M. B. *Bombay*, 1856, pamphlet.—BY THE LECTURER.

Mâhahháshya, edited by Dr. Ballantine and Kashinauth Shastry, *Benares*.—BY THE EDITORS.

The Quarterly Journal of the Geological Society, Vol. XII, part 2, No. 46, *London*, 8vo.

The Journal of the Society of Arts, and of the Institutions in Union, Vol. IV. No. 188, *London*.—BY THE SOCIETY.

Proceedings of the Royal Geographical Society of London, No. III. April and May, 1856.—BY THE SOCIETY.

Journal Asiatique, Tome VII. No. 26, for February and March 1856.

Natuurkundig Tidschrift voor Nederlandsch Indië, Deel I. Derde Serie Deel IX. Aflev. I. II. og III.—BY THE NATURAL HISTORY SOCIETY OF NETHERLANDS' INDIA.

Twenty eight Sections of the Trigonometrical Survey Atlas.—BY MAJOR THUILLIER.

The Oriental Christian Spectator, for July, 1856, Bombay.—BY THE EDITOR.

The Calcutta Christian Observer, for August, 1856.—BY THE EDITORS.

The Oriental Baptist, for August, 1856.—BY THE EDITOR.

The Upadeshak, for August, 1856.—BY THE EDITOR.

The Tuttwabodhini Putrica, No. 157.—BY THE TATTWABODHINI SABH'A.

The Durbín Newspaper, for August, 1856.—BY THE EDITOR.

The Phoenix Newspaper, for August, 1856.—BY THE EDITOR.

Exchanged.

The Athenæum, for May, 1856.

The London, Edinburgh and Dublin Philosophical Magazine and Journal of Science, No. 74, for June, 1856.

Purchased.

Genealogische Tabellen der Arabischen stämme und familien. In zwei abtheilungen. Mit historischen und geographischen bemerkungen in einem alphabetischen Register. Von Dr. F. Wüstenfeld, 1st and 2nd parts, *Göttingen*, 1852.

Die Kaukasischen Glieder des Indoeuropäischen Sprachstamms von Franz Bopp. *Berlin*, 1847, pamphlet.

Was hat Mohammed Aus dem Judenthume, aufgenommen? von Abraham Geiger, *Bonn*, 1833, 8vo.

Revue et Magasin de Zoologie, No. 4, 1856.

Journal des Savants, for April and May, 1856.

The Literary Gazette, Nos. 12 to 16.

L'Athenæum Français, Nos. 18 to 20.

Revue des Deux Mondes, 15th May, 1856, and 1st June, 1856.

Annales des Sciences Naturelles, Tome 4th, No. 5.

GOUR DOSS BYSA'CK,

Asst. Secy. and Librarian.

1st September, 1856.

FOR OCTOBER, 1856.

At a monthly general meeting of the Society held on the 1st instant, at the usual hour,

Captain W. S. Sherwill, senior member present, in the chair.

The proceedings of the last meeting were read and confirmed.

A presentation was received from Mr. Moore of a glass tumbler melted by the electric fluid passing through a room. The following is his note.

"I send you a tumbler melted by a flash of lightning. Luckily the bolt passed through the room without doing any one any harm, though several were seated at table when the occurrence took place."

Letters from Mr. Huffnagle and Captain Hopkinson, announcing their withdrawal from the Society, were recorded.

Raja Gris Chundra Ráya Báhadur of Kishnaghur was proposed by A. Grote, Esq., and seconded by Dr. Spilsbury for ballot at the next meeting.

The council submitted reports—

1.—Announcing that Dr. Sprenger having gone to Europe, his place in the Council had been filled up by the election of Mr. Samuells, subject to the confirmation of the Society at the next meeting.

2.—Recommending that the suggestions contained in the sub-joined report from the Sub-Committee of Philology be adopted.

Report of the Philological Sub-Committee to the Council of the Asiatic Society.

With reference to the late Despatch from the Hon'ble Court of Directors on the Oriental publications of the Asiatic Society, and the expected departure of Dr. Sprenger from India the Sub-Committee of Philology submit the following suggestions for the consideration of the Council.

The Sub-Committee find that there are now sixteen works in course of publication in the Bibliotheca Indica. Of these five are Arabic and Persian, and the rest Sanskrit. The former include Ibn Koteyba's Handbook of History, the Sekandernamah of Nizámy, a

Dictionary of Persons who knew Mohammed, a Dictionary of Technical Terms and a History of the Conquest of Syria.

Of these the Handbook of History was undertaken in the year 1851. The Society then had at its disposal three very ancient MSS. while at that time in all Europe there were only four, and every one of them more recent than the most modern copy in the possession of Dr. Sprenger, who had kindly undertaken to edit the work. Under these circumstances there seemed to be no reason to expect that any one else would anticipate the Calcutta edition. But before 60 pages of the work had been printed, the Committee were informed that Professor Wüstenfeld of Berlin had lithographed the whole book, and there existed no further occasion to print it in this country. They, therefore, immediately put a stop to the Society's edition, and have now to recommend that it be dropped altogether.

2.—The Sekandernamah has been printed to the extent of nearly one half; the other half will fill about one fasciculus. The MSS. available for this portion are correct, and as soon as Dr. Sprenger has compared them with a printed copy lately brought by him from Bagdad, it should be carried through the press under the superintendence of a competent Mawlavi.

3.—Of the Dictionary of Persons who knew Mohammed thirteen fasciculi have been published. This portion includes nearly one fourth of the work, and has been printed at a cost of about Rs. 4000. To complete it, it will be necessary to incur an additional expense of at least Rs. 10,000. The MSS. from which the first portion of the work has been printed, belong to individuals to whom they must be immediately returned by Dr. Sprenger, having been already detained for more than three years, so that the work can no longer be continued. The committee therefore propose that the published portion be offered to any publisher, who will undertake under proper guarantee to complete the work and present to the Society 50 copies of the continuation.

4.—The remarks made with reference to the Biographical Dictionary apply equally to the Dictionary of Technical Terms, and for its completion the Sub-Committee would recommend a similar plan. But in as much as really one half of the work has been

already printed, the expense of completing it will be comparatively less, and as the work is likely to find a ready sale, the first portion may be sold to the publisher at the reduced price of 4 to 6 annas per copy, instead of being given away in exchange for 50 copies of the concluding portion.

5.—The last Arabic work, which remains incomplete is Lees' History of the Conquest of Syria. As no competent editor is at present available to undertake the task, the committee find the work must stand over until the return of Lieut. Lees from Europe, when they hope it will be brought to a completion.

The Sanskrita series includes three* portions of the Vedas, two† works on Hindu Philosophy, one‡ on Astronomy, two§ on Indian Mythology, one|| on the Prakrit language and,¶ one on belles lettres. These works are all of considerable importance and well calculated to enhance the credit of the serial in which they are being published. The Committee are of opinion, therefore, that the printing of these works should be continued gradually, as the means at the disposal of the Society enable it to proceed; adequate provision being made in the first place for the speedy liquidation of the debt due by the Oriental Publication Fund.

The Bibliotheca Indica, as a series, has now attained to the 139th Fasciculus, comprehending a large number of works on various branches of Asiatic learning; it has established its reputation in Europe, where it has earned for the several editors engaged on it and for the Society which has conducted it, expressions of thanks that must be very grateful to both. The unfinished works will scarcely occupy less than 50 numbers, quite sufficient to make the contents of the series a compact and complete publication. Looking to the extent to which their resources have been anticipated, the Committee see little chance of their being in a condition to undertake a new work for the next three years, and they therefore

* Black Yajur Bráhmāna, Black Yajur Sanhita, and Chhándogya Upanashads.

† Vedānta Sūtras and Sarvādarsana Sangraha.

‡ Surya Siddhānta.

§ Mārkaṇḍeya Purāṇa and Lalita Vistara.

|| Krāmādis verax Prakritādhyā.

¶ Vasavadatta.

recommend that the Bibliotheca Indica be brought to a close. The recent orders of the Court, indeed, will render necessary a revision of the rules, which were introduced in 1852, and under the influence of which so many valuable books have been undertaken before any 2nd series of the Bibliotheca can be commenced with.

(SD.) A. GROTE.

„ J. LONG.

„ RAJENDRALAL MITTRA.

„ W. S. ATKINSON.

The recommendations were adopted.

Communications were received—

1.—From Major J. J. Bush, Peshawur, bringing to notice that a regular trade has sprung up at Peshawur and Ráwalpindeé by which large quantities of spurious Bactrian and Indo-Scythian coins are brought to sale.

“ The following is his letter—

“ Since the articles by Major A. Cunningham on spurious Bactrian and Indo-Scythian coins, published in the journal of the Asiatic Society of Bengal in 1840, there has not been apparently any further notice on the subject, and as the evil has alarmingly increased of late years, it may not perhaps be altogether out of place to call attention to the clever fabrications every where now procurable in the Punjab.

“ The forgeries exposed by Major Cunningham were described by him ‘ of the rudest kind, faint and indistinct in the outline of the figures, want of boldness in relief, utter barbarousness of execution, a full eye to a side face, Greek characters indistinct and corrupt, and the Bactro-Pali jumbled, transposed, imperfect and reversed ;’ but we now find them of extreme boldness in relief, the legends generally correct and sharply cut in both characters ; many of them of considerable excellence, as works of art, and with but little to denote their utter worthlessness of character as genuine ancient medals.

“ The Bactrian fabrications are now never reproduced in gold, the Indo-Scythian occasionally are in silver ; and the places where the trade chiefly flourishes, are Peshawur and Rawul Pindee. At the former, silver Bactrians can be obtained by bags-full, but these, gene-

rally of impure silver and cast, at once tell their own tale. It is at Rawul Pindee that the best spurious coins are made,—*paida kuhna* is the expression used by the men who bring them for sale—these are of good silver, and the dies so well executed that it is becoming every day more difficult to detect a struck forgery; sometimes the eye or the mouth of a face is faulty, very often the monogram, and now and then there is a break down in the Greek legend by the omission of the small omicrons, or the bottom loop of the letter B. I have seen hemidrachmas of Azas and Azilics so well got up as to be perplexing enough, but when they are offered for sale by twenties and thirties, and purchaseable for annas, there can be no question as to their origin. Nearly all the recent additions to Bactrian Numismatics, first made known to us, I believe, by Major Cunningham's *unpublished* plates, are common as forgeries: beside these, is the Lysias with Eucratides style of helmet, first published in the Numismatic Chronicle for October, 1853, and I have recently seen a forged Diodotus corresponding with Major Cunningham's supplementary Plate, Fig. 6,* which affords a very convincing proof, it is to be feared, that *a white man* and his brethren are still at their dirty work.

“To commence a crusade up here against the trade, which it really has become, would be in vain, for there is not a money-changer or shroff, and very few jewellers, (many of them possibly in ignorance of the truth,) who have not laid in a supply of fabrications under the idea that the *Sahib logue* will be eager to purchase. The market being overstocked and the thing altogether overdone may in some measure check the evil, but nothing save the civil authorities setting their police at work to search the coining dens, and on their seizing the implements, well punishing the perpetrators of this *jal sazi*, will ever effectually stop it. In the meantime as it is beyond a doubt that the fabricators do obtain information from such sources, let me strongly advise collectors on no consideration whatsoever, to send plates or drawings of coins to their agents in the Punjab or new Provinces, for by doing so they very often unwittingly afford instruction and assistance of the very kind it is our interest to prevent.”

* With the Greek { ΒΑΣΙΛΕΩΣ ANTIOXOY.
legend altered to. { [*Basileos Antiochou*]

2.—From Mr. Hodgson the following papers—

1.—A Note on the native name of the peak of the Himalaya, the height of which has been lately determined by Col. Waugh.

2d.—Route of two Nepalese Embassies to Pekin, with remarks on the water shed and plateau of Tibet.

3d.—Systematic Summary of the Route from Kathmandu to Pekin as traversed by the Nepalese Ambassador to China, Káji Dalbhánjan Pánde, A. D. 1822-3, and set down by his Secretary at the close of each day's journey.

4th.—Abstracts of diary of Route from Kathmandu to Pekin as taken during the Embassy of Chountra Pushkar Sah, showing the number and position of the mountain passes.

The first paper, which was read to the meeting, is subjoined.

NATIVE NAME OF MOUNT EVEREST.

TO THE SECRETARY, ASIATIC SOCIETY OF BENGAL.

SIR,—In the report which has just reached me of the last meeting of the Society, it is announced that a “nameless” peak situated North East of Kathmandu, and in East Longitude 87, had at length been definitely ascertained by our very able Surveyor General, Colonel Waugh, to be upwards of 29000 feet high, and consequently to be the loftiest yet known peak of the Himalaya.

The report goes on to say, that “Colonel Waugh mentioned in his letter that it was his rule and practice to assign to every geographic object its true local or native appellation. But here was a mountain, probably the loftiest in the world, without any local or native name that was either now ascertained or likely to become so, till Nepal could be entered and this stupendous mass of snow closely approached.” Consequently, Colonel Waugh had been obliged to coin a name, and had fixed on Mount Everest.

Agreeing as I do with Colonel Waugh in the propriety of his rule of adopting native names, and cordially sympathising with the sentiment which gave rise to the name Mount Everest, I trust I may be permitted, without offence, to state, in justice to my friends the Nepalese and to myself who have been so long connected with them, that the mountain in question does *not* lack a native and ascertained name; that that name is Déva-dhúngá, or holy hill,

Mons Sacer in Latin; and that it is expressly referred to under that name in our Journal. To the paper styled "Route from Kathmandu to Darjeeling" there is appended a "Memorandum relative to the seven Cosis." In the latter occur the following words: "The Bhotia Cosis," has its source at Déo-dhúnga a vast Himalayan peak situated 60 to 70 miles east of Gosainthán, and which Colonel Waugh conjectures may rival Kángchan-jhúnga in height. In the rude sketch map which accompanied that paper, Déo-dhúnga was set down, *co nomine*, in the position indicated, and that that position tallies with the site of Mount Everest, is clear from the words above quoted, since "60 to 70 miles east of Gosainthán," answers precisely to east longitude 87, Gosainthán," being in 86 east longitude.

Other indications equally correspond, and at the same time show why such an object could not remain unnamed or unascertained.

Thus Déodhúnga and Mount Everest are both "about 100 miles N. E. of Kathmandu;" both are midway between Gosainthán and Kangchan and, lastly, both are by their position and by the absence of any like mass of snow in all the interval between those peaks, identifiable with the so called Kútighát, or the great *Gate*, which annually for half the year is closed by winter upon the eastern highway of Nepalese commerce and intercourse with Tibet and China.

A few words more may be given to this last point, as being the matter which chiefly fixed my attention, as a political officer in Nepal, on the site of Mount Everest, and enabled me at once, when I heard in after years surmises (from I think Col. Waugh himself or from some of his subordinates) of the great height of a peak in that direction, to fix on Déva-dhúnga vel Bháiravthán (both names are used) as being the "enormous snow mass" in question; and I have often of late repeated this here, very recently to Mr. Blandford. Round the shoulder of Déo-dhúnga runs, as above intimated, the great eastern highway (the western being round the shoulder of Gosainthán) of the merchants and envoys of Nepal proceeding to Lhása and Pekin; and this passage along the shoulder of the huge snowy mass Déo-dhúnga vel Bháiravthán is denominated the Kutighát by Hindusthanees and the people of the plains of India,

as the passage round the huge snowy mass of Gosainthán is denominated by them the Kérung, or western Ghát. But Kúti and Kérung are names of towns, the one situated considerably within, and the other considerably beyond, the respective gháts; and, moreover, the word ghát is never used by the highlander (Parbatias) of Nepal for a snow-pass. Their word is langúr, and the especial langúr in question is named Bhaírava langúr or the pass of Bhaírava, just as the mass above it is called Bhaíraváthán, or abode of Bhaírava, Bhaírava being the terrific form of the god Siva. Every merchant and statesman at Kathmandu talks familiarly of the Bhaírava langúr, owing to its formidable character, its obstructiveness (it bars the road to the north for half the year,) and its strange contrast with that very extensive and very level tract of country in Tibet, called the Tingrí Maidan, on which the Bhairav langúr immediately opens. And this marked character of the ghát, added to the unmarked character of the peak above it, may be one reason why the two are often confounded under the same appellation. But Déo-dhúnga and Bhaíraváthán are nevertheless sufficiently familiar, and correct names for this peak, or snowy mass rather; and it were indeed a strange circumstance if so remarkable a natural object had escaped the notice of the people of the country and thus remained unnamed. Nor would it have been very creditable to me after 20 years' residence in Nepal, had I been unable to identify that object. The two papers herewith submitted, together with those formerly submitted to the Society* or to Government, will I trust show that I have given as much attention to the

* 1. Military road throughout the centre of Nepal from Kamaonto Sikim. To Government.

2. Route from Kathmundu to Tazedo on Chinese frontier, to Society, and published in its Researches.

3. Route from Kathmundu to Darjeeling. To Society and published in its Journal.

4. Physical Geography of Himalaya, to Society and published in its Journal.

5. Visit to Nagakote with notice of the rivers flowing into it, printed in the Journal.

6. Various routes through Nepal from and to places specified. Sent to Government and deposited in its archives.

7 and 8. Two Journals of embassies from Nepal to China, now sent.

general subject of Nepalese Geography as my opportunities and training admitted and my duty required, whilst the foregone remarks must satisfy every one that this special object, supposed to have been heretofore utterly unheeded, was one so situated and circumstanced that no reasonable excuse for ignorance of it on my part could be made, it being clear that personal approximation was no more a necessary condition of ascertaining the name, than it was of determining the height, of Déo-dhúnga.

The only doubt in my mind is the greater or less prevalence in Nepal Proper of the term Déo-dhúngá.

Having possibly obtained it from persons dwelling in the vicinity of Kúti, not at Kathmundu, I have written to Kathmundu to determine that question, and will here only add, that should the name prove to be more familiar to the people of the Cosian basin than to those of the valley and capital, it will not be one whit less a "true native name," just as Col. Waugh's own Powhanri is as true a native name as Dr. Hooker's Dónkia, in relation to a Sikim peak and ghát.

I am, sir, your obedient servant,

(Sd.) B. H. HODGSON.

P. S. I subjoin for reference a copy of the sketch map adverted to, taken from one of my extra copies of the memoir on the Seven Cósís.

The two papers herewith submitted are—

1.—Route of the Embassy of Káji Dalbhánjan Pándé to Pekin.

2.—Route of the Embassy of Chountra Pushker Sah to Pekin.

Both from Kathmundu of course.

On the proposition of the chairman, the thanks of the meeting were voted to Mr. Hodgson for his valuable papers.

3.—From Mr. Assistant Secretary Oldfield, enclosing copies of Meteorological Registers kept at the office of the Secretary to the Government of the N. W. P. Agra, for the months of July and August last.

4.—From Bábu Rádhá Náth Sikdár, copy of a Meteorological Register kept at the office of the Surveyor General for the month of August last.

The Librarian submitted his usual monthly report.

LIBRARY.

The Library has received the following additions during the month of September last.

Presented.

Selections from the Records of the Government of India, No. XV. Papers regarding the Jubbulpore School of Industry, Flax operations in the Punjaub, Survey Reports of the Central and Northern portions of Pegu.—BY THE BENGAL GOVERNMENT.

Ditto Ditto.—BY THE GOVERNMENT OF INDIA.

Ditto Ditto, No. XVI. Report on the operations connected with the Hindoostan and Thibet Road.—BY THE GOVERNMENT OF INDIA.

Report on the Coal and Iron districts of Bengal by Mr. D. Smith.—BY THE SAME.

Soie et Papier Tires de L'écorce aux fascines du mûrier par Frédéric Lotteri. *Malte*, Pamphlet.—BY THE AUTHOR.

Memoire sur Le Sarcophage et L'inscription Funéraire D'eschmou-nazur par M. L'Abbé J. J. L. Bargès. *Paris*, 1856.—BY THE AUTHOR.

Byākaran Chandricā, ব্যাকরণ চন্দ্রিকা, by Mothoornauth Turkoruthno, 12mo. pamphlet.—FROM THE AUTHOR.

The Oriental Baptist for September, 1856.—BY THE EDITOR.

The Calcutta Christian Observer for Sept., 1856.—BY THE EDITORS.

The Calcutta Christian Spectator for August, 1856, Bombay.—BY THE EDITOR.

The Upadeshak for September, 1856.—BY THE EDITOR.

The Durbin Newspaper for September, 1856.

The Phoenix Newspaper for ditto.

The Morning Chronicle ditto for ditto.

Journal Asiatique, Tome VII. No. 27, for Avril-Mai, 1856.—BY THE ASIATIC SOCIETY OF PARIS.

Proceedings of the Royal Geographical Society of London, No. 4, May and June, 1856.—BY THE SOCIETY.

Specimen e Literis Orientalibus, exhibens az-zamaksarii Lexicon Geographicum, cui titulus est كتاب الجبال والامكنة والسلا Ex cod. Leyd. nunc primum edidit Matthias Salverda de Grave. *Lugduni Batavorum*, 8vo. 1856.—BY THE CURATORS OF THE ACADEMY OF LEYDEN.

Journal of the Academy of Natural Sciences of Philadelphia, new series, Vol. II. part IV.—BY THE ACADEMY.

Journal of the Royal Geographical Society, Vol. 25.—BY THE SOCIETY.

Exchanged.

The Athenæum, for June and July, 1856.

The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, Nos. 75 and 76 for July, and 77 for August, 1856.

The Calcutta Review, No. 53, for September, 1856.

Purchased.

Annales des Sciences Naturelles. Tome IV. No. 6. and Tome V. No. 1.

Revue et Magasin de Zoologie, Nos. 5 and 6, 1856.

Revue des Deux Mondes, 15th June, July, and 1st August, 1856.

Journal Des Savants, for June and July, 1856.

Comptes Rendus Nos. 20 to 21, for May, Nos. 22 to 26, for June, 1856, and Nos. 1 and 2, for July, 1856.

The Literary Gazette, Nos. 17 to 24.

L'Athenæum Français, Nos. 21 to 29, excepting No. 27.

The Quarterly Review, No. CXCVII. for June, 1856.

The Edinburgh Review, No. 211, for July, 1856.

The American Journal of Sciences and Arts, Nos. 63 and 64.

The Annals and Magazine of Natural History, for July and August, 1856.

The Westminster Review, No. XIX. for July, 1856.

The Natural History Review.

1st October, 1856.

GOUR DOSS BYSACK,

Asst. Secy. and Librarian.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of April, 1856.*

Latitude 22° 33' 1" North, Longitude 88° 20' 34" East.

Height of the cistern of the Standard Barometer above the Level of the Sea 18.11. feet.

Daily Means, &c. of the Observations, and of the Hygrometrical elements
dependent thereon.

Date.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer during the day.			Mean Dry Bulb Thermometer.	Range of the Tempera- ture during the day.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	°	°	°	°
1	29.830	29.918	29.762	0.156	86.2	97.0	78.3	18.7
2	.789	.880	.715	.165	86.7	97.2	77.6	19.6
3	.758	.849	.689	.160	86.7	97.4	78.8	18.6
4	.759	.833	.681	.152	85.8	93.3	81.0	12.3
5	.757	.854	.663	.191	86.8	97.0	78.8	18.2
6	<i>Sunday.</i>							
7	.667	.747	.581	.166	85.4	93.0	79.9	13.1
8	.583	.652	.500	.152	86.9	97.2	79.8	17.4
9	.621	.702	.550	.152	86.1	92.6	81.4	11.2
10	.689	.770	.627	.143	85.8	93.0	80.4	12.6
11	.745	.823	.690	.133	86.0	93.0	81.9	11.1
12	.726	.819	.662	.157	86.3	93.9	81.8	12.1
13	<i>Sunday.</i>							
14	.668	.762	.592	.170	87.4	96.6	81.6	15.0
15	.676	.752	.616	.136	87.5	98.0	80.3	17.7
16	.749	.836	.667	.169	85.3	92.7	80.7	12.0
17	.798	.881	.712	.169	85.3	93.6	79.3	14.3
18	.752	.816	.658	.158	85.9	94.6	78.0	16.6
19	.708	.788	.631	.157	86.2	96.4	78.0	18.4
20	<i>Sunday.</i>							
21	.602	.684	.531	.153	86.4	95.0	80.8	14.2
22	.658	.730	.595	.135	86.5	95.4	79.6	15.8
23	.692	.752	.624	.128	86.4	92.8	81.6	11.2
24	.699	.753	.618	.135	86.6	92.4	81.2	11.2
25	.757	.828	.686	.142	86.5	94.4	81.2	13.2
26	.810	.916	.735	.181	79.1	89.0	73.0	16.0
27	<i>Sunday.</i>							
28	.817	.896	.735	.161	83.5	93.1	78.2	14.9
29	.804	.882	.724	.158	84.4	94.2	77.8	16.4
30	.760	.842	.655	.187	85.6	93.4	79.8	13.6

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of April, 1856.*

Daily Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Date.	Mean Wet Bulb Ther- mometer.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Va- pour in a Cubic foot of Air.	Additional weight of vapour required for complete saturation.	Mean degree of Hu- midity, complete sa- turation being unity.
	0	0	0	0	Inches.	T. gr.	T. gr.	
1	78.5	7.7	74.6	11.6	0.843	8.98	4.01	0.69
2	76.3	10.4	71.1	15.6	.753	.02	5.16	.61
3	80.6	6.1	77.5	9.2	.925	9.86	3.32	.75
4	80.4	5.4	77.7	8.1	.931	.94	2.89	.78
5	77.4	9.4	72.7	14.1	.792	8.44	4.77	.64
6	<i>Sunday.</i>							
7	80.6	4.8	78.2	7.2	.946	10.11	2.57	.80
8	81.5	5.4	78.8	8.1	.964	.27	.98	.78
9	81.1	5.0	78.6	7.5	.958	.21	.74	.79
10	80.2	5.6	77.4	8.4	.922	9.85	.98	.77
11	80.5	5.5	77.7	8.3	.931	.94	.97	.77
12	80.8	5.5	78.0	8.3	.940	10.03	.99	.77
13	<i>Sunday.</i>							
14	76.7	10.7	71.3	16.1	.758	8.06	5.39	.60
15	78.6	8.9	74.1	13.4	.830	.83	4.66	.66
16	79.6	5.7	76.7	8.6	.902	9.62	3.02	.76
17	79.3	6.0	76.3	9.0	.890	.52	.12	.75
18	79.8	6.1	76.7	9.2	.902	.62	.25	.75
19	78.9	7.3	75.2	11.0	.860	.16	.83	.71
20	<i>Sunday.</i>							
21	80.6	5.8	77.7	8.7	.931	.92	.14	.76
22	80.6	5.9	77.6	8.9	.928	.89	.21	.76
23	80.1	6.3	76.9	9.5	.908	.66	.40	.74
24	80.2	6.4	77.0	9.6	.910	.69	.45	.74
25	79.7	6.8	76.3	10.2	.890	.50	.60	.73
26	75.4	3.7	73.5	5.6	.814	8.79	1.74	.84
27	<i>Sunday.</i>							
28	77.6	5.9	74.6	8.9	.843	9.03	2.97	.75
29	77.7	6.7	74.3	10.1	.835	8.94	3.37	.73
30	79.1	6.5	75.8	9.8	.876	9.35	.41	.73

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of April, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Hour.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer for each hour during the month.			Mean Dry Bulb Thermometer.	Range of the Temperature for each hour during the month.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	o	o	o	o
Mid-night.	29.729	29.825	29.605	0.220	82.3	84.6	79.8	4.8
1	.720	.840	.595	.245	81.9	86.0	79.4	6.6
2	.710	.818	.580	.238	81.4	84.4	78.9	5.5
3	.699	.815	.564	.251	81.0	83.1	78.2	4.9
4	.705	.814	.559	.255	80.5	82.5	78.0	4.5
5	.719	.836	.550	.286	80.1	82.5	77.9	4.6
6	.742	.850	.580	.270	80.1	82.0	77.6	4.4
7	.761	.875	.601	.274	81.0	83.0	78.2	4.8
8	.783	.900	.628	.272	83.6	85.4	81.7	3.7
9	.799	.913	.645	.268	86.4	88.6	84.4	4.2
10	.799	.918	.642	.276	88.7	90.3	85.6	4.7
11	.787	.902	.631	.271	91.0	93.7	88.2	5.5
Noon.	.768	.916	.600	.316	92.0	95.1	73.2	21.9
1	.737	.909	.571	.338	93.1	96.8	73.0	23.8
2	.705	.843	.533	.310	93.6	97.8	73.4	24.4
3	.681	.838	.506	.332	93.3	98.0	76.8	21.2
4	.663	.772	.505	.267	92.3	98.0	76.2	21.8
5	.655	.762	.500	.262	90.3	96.2	75.8	20.4
6	.664	.763	.517	.246	88.0	92.6	75.2	17.4
7	.684	.792	.529	.263	85.8	88.6	74.8	13.8
8	.705	.796	.554	.242	84.3	87.4	74.8	12.6
9	.726	.813	.571	.242	83.4	85.0	74.8	10.2
10	.738	.824	.607	.217	82.8	84.4	74.2	10.2
11	.740	.821	.609	.212	82.4	83.8	73.2	10.6

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of April, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon.

Hour.	Mean Wet Bulb Thermo- meter.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a cubic foot of Air.	Additional weight of va- pour required for com- plete saturation.	Mean degree of Humidity, complete saturation be- ing unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
Mid- night.	78.7	3.6	76.9	5.4	0.908	9.76	1.82	0.84
1	78.3	3.6	76.5	5.4	.896	.65	.79	.84
2	78.1	3.3	76.4	5.0	.893	.62	.65	.85
3	77.8	3.2	76.2	4.8	.887	.56	.58	.86
4	77.6	2.9	76.1	4.4	.885	.55	.43	.87
5	77.4	2.7	76.0	4.1	.882	.52	.32	.88
6	77.1	3.0	75.6	4.5	.871	.39	.45	.87
7	77.8	3.2	76.2	4.8	.887	.56	.58	.86
8	78.9	4.7	76.5	7.1	.896	.61	2.42	.80
9	79.6	6.8	76.2	10.2	.887	.47	3.59	.73
10	80.5	8.2	76.4	12.3	.893	.49	4.47	.68
11	80.9	10.1	75.8	15.2	.876	.25	5.68	.62
Noon.	80.9	11.1	75.3	16.7	.862	.08	6.28	.59
1	81.1	12.0	75.1	18.0	.857	.00	.86	.57
2	81.3	12.3	75.1	18.5	.857	8.99	7.09	.56
3	81.2	12.1	75.1	18.2	.857	9.00	6.95	.56
4	81.0	11.3	75.3	17.0	.862	.08	.42	.59
5	80.6	9.7	75.7	14.6	.873	.22	5.41	.63
6	80.4	7.6	76.6	11.4	.899	.56	4.12	.70
7	79.5	6.3	76.3	9.5	.890	.50	3.33	.74
8	78.8	5.5	76.0	8.3	.882	.45	2.83	.77
9	78.5	4.9	76.0	7.4	.882	.47	.49	.79
10	78.7	4.1	76.6	6.2	.899	.65	.10	.82
11	78.5	3.9	76.5	5.9	.896	.63	1.98	.83

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of April, 1856.*

Solar radiation, Weather, &c.

Date.	Max. Solar radiation.	Rain.	Prevailing direction of the Wind.	General Aspect of the Sky.
	o	Inches.		
1	137.0	..	S. or S. W.	Cloudless.
2	148.4	..	S. or W.	Ditto.
3	147.0	..	S. or S. W.	Ditto.
4	137.0	..	S. (high 7 to 9 P. M.)	Cloudless till 8 A. M. cloudy afterwards.
5	136.0	..	S. or S. W.	Cloudless.
6	<i>Sunday.</i>			[clouds till 8 P. M. cloudless afterwards.
7	125.0	..	S. E. or S.	Cloudless till 7 A. M. scattered thin
8	143.0	..	S.	Cloudless.
9	131.0	..	S. (high at 6 P. M.)	Cloudy till 7 P. M. cloudless afterwards.
10	137.0	..	S.	Cloudless till 4 A. M. scattered ci till 3
11	132.0	..	S. (constantly high.)	Cloudy. [P. M. cloudy afterwards.
12	143.0	..	S. (constantly high.)	Cloudy till Noon, cloudless afterwards.
13	<i>Sunday.</i>			[scattered ci afterwards.
14	133.0	..	S. E. or S.	Cloudy till 10 A. M., cloudless till 3 P. M.
15	145.7	..	S. or W.	Scattered ci & ci till 9 A. M. cloudless
16	133.2	..	S.	Scattered ci. [afterwards.
17	146.0	..	S. E. or S.	Scattered ci till 2 A. M. cloudless till 7 A. M. various clouds till 11 A. M. cloudless afterwards.
18	130.0	..	S. (high at 10 A. M.)	Cloudless.
19	132.4	..	S.	Ditto.
20	<i>Sunday.</i>			
21	131.0	..	S.	Scattered clouds till 11 A. M. cloudless
22	142.0	..	S. [to 11 P. M.)	Occasionally cloudy. [afterwards.
23	129.0	..	S. (high after 8 A. M.)	Cloudy.
24	128.6	..	S. or S. E. (high throughout the day.)	Cloudy, also lightning 7 to 9 P. M.
25	131.4	..	S. E. (high) or S.	Cloudy.
26	..	0.42	S. E. or S. or E. also a N. Wester between 11 A. M. & 1 P. M.	[P. M. Cloudy with rain between 11 A. M. to 1
27	<i>Sunday.</i>			[3 P. M.
28	126.2	0.20	S. E. or S.	Clouds of various kinds and raining at
29	147.0	..	S. E. or S. W. or S.	Cloudless till 5 A. M. clouds of vari- ous kinds afterwards.
30	134.8	..	S.	Clouds of various kinds.

ci Cirri, ci cirro strati, ci cumuli, ci cumulo strati, ci Nimbi, —i strati,
ci cirro cumuli.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of April, 1856.*

MONTHLY RESULTS.

			Inches.
Mean height of the Barometer for the month,	..	....	29.726
Max. height of the Barometer, occurred at 10 A. M. on the 1st,		....	29.918
Min. height of the Barometer, occurred at 5 P. M. on the 8th,		....	29.500
Extreme range of the Barometer, during the month,	..	....	0.418

			°
Mean Dry Bulb Thermometer for the month,	..	....	85.8
Max. Temperature, occurred at 3 P. M. on the 15th,	..	....	98.0
Min. Temperature, occurred at 1 P. M. on the 26th,	..	....	73.0
Extreme range of the Temperature, during the month,	..	....	25.0

Mean Wet Bulb Thermometer for the month,	..	....	79.3
Mean Dry Bulb Thermometer, above Mean Wet Bulb Thermometer,....			6.5
Computed Mean Dew Point for the month,	..	....	76.0
Mean Dry Bulb Thermometer, above computed Mean Dew Point,	..		9.8

			Inches.
Mean elastic force of vapour for the month,	..	....	0.882

			Troy grains.
Mean weight of vapour for the month,	..	....	9.41
Additional weight of vapour, required for complete saturation.		....	3.42
Mean degree of Humidity for the month, complete saturation being unity,			0.73

			Inches.
ained 2 days. Max. fall of Rain during 24 hours,	..	....	0.42
Total amount of rain during the month,	..	....	0.62

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of May, 1856.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

Feet.
Height of the Cistern of the Standard Barometer above the level of the Sea, 18.11

Daily Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon.

Date.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer during the day.			Mean Dry Bulb Thermometer.	Range of the Tempera- ture during the day.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	o	o	o	o
1	29.750	29.815	29.670	0.145	85.5	93.9	74.8	19.1
2	.715	.783	.657	.126	83.9	92.2	77.6	14.6
3	.690	.754	.622	.132	82.1	92.2	75.6	16.6
4	<i>Sunday.</i>							
5	.705	.795	.635	.160	87.2	95.4	81.4	14.0
6	.731	.785	.649	.136	84.4	91.8	75.4	16.4
7	.704	.784	.621	.163	86.9	93.9	82.3	11.6
8	.649	.708	.539	.169	86.7	94.8	79.5	15.3
9	.642	.709	.550	.159	85.9	94.8	78.4	16.4
10	.647	.704	.576	.128	88.2	95.1	83.3	11.8
11	<i>Sunday.</i>							
12	.586	.645	.498	.147	89.1	97.0	84.1	12.9
13	.585	.636	.529	.107	89.1	96.8	84.0	12.8
14	.606	.716	.529	.187	87.5	96.8	75.5	21.3
15	.635	.703	.576	.127	82.8	92.4	77.0	15.4
16	.721	.789	.637	.152	83.0	90.5	76.0	14.5
17	.746	.811	.694	.117	85.3	94.0	77.0	17.0
18	<i>Sunday.</i>							
19	.771	.868	.686	.182	86.7	94.5	80.2	14.3
20	.740	.818	.685	.133	87.2	95.2	80.9	14.3
21	.761	.827	.672	.155	87.5	94.3	81.4	12.9
22	.738	.795	.666	.129	86.3	94.2	80.2	14.0
23	.700	.798	.622	.176	83.9	90.0	78.4	11.6
24	.715	.769	.661	.108	81.4	90.3	77.4	12.9
25	<i>Sunday.</i>							
26	.595	.642	.518	.124	79.7	83.4	77.4	6.0
27	.574	.641	.511	.130	82.4	89.0	76.0	13.0
28	.536	.608	.445	.163	86.7	94.2	80.5	13.7
29	.458	.518	.384	.134	83.8	87.8	80.4	7.4
30	.421	.463	.358	.105	80.2	81.4	78.6	2.8
31	.430	.517	.381	.136	80.7	84.0	78.5	5.5

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of May, 1856.*

Daily Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Date.	Mean Wet Bulb Thermo- meter.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a cubic foot of Air.	Additional Weight of Va- pour required for com- plete saturation.	Mean degree of Humidity complete saturation be- ing unity.
	°	°	°	°	Inches.	T. gr.	T. gr.	
1	78.5	7.0	75.0	10.5	0.834	9.11	3.61	0.72
2	78.3	5.6	75.5	8.4	.868	.31	2.82	.77
3	77.5	4.6	75.2	6.9	.860	.24	.27	.80
4	<i>Sunday.</i>							
5	81.6	5.6	78.8	8.4	.964	10.27	3.10	.77
6	79.2	5.2	76.6	7.8	.899	9.61	2.70	.78
7	81.3	5.6	78.5	8.4	.955	10.18	3.07	.77
8	80.6	6.1	77.5	9.2	.925	9.86	.32	.75
9	79.5	6.4	76.3	9.6	.890	.50	.37	.74
10	82.3	5.9	79.3	8.9	.979	10.40	.36	.76
11	<i>Sunday.</i>							
12	82.5	6.6	79.2	9.9	.976	.35	.77	.73
13	82.7	6.4	79.5	9.6	.986	.45	.67	.74
14	81.2	6.3	78.0	9.5	.940	9.99	.50	.74
15	77.3	5.5	74.5	8.3	.840	.03	2.72	.77
16	78.0	5.0	75.5	7.5	.868	.31	.51	.79
17	79.2	6.1	76.1	9.2	.885	.46	3.18	.75
18	<i>Sunday.</i>							
19	80.0	6.7	76.6	10.1	.899	.57	.61	.73
20	80.2	7.0	76.7	10.5	.902	.58	.79	.72
21	80.2	7.3	76.5	11.0	.896	.54	.95	.71
22	79.6	6.7	76.2	10.1	.887	.47	.55	.73
23	77.6	6.3	74.4	9.5	.838	8.97	.16	.74
24	78.4	3.0	76.9	4.5	.908	9.76	1.51	.87
25	<i>Sunday.</i>							
26	77.7	2.0	76.7	3.0	.902	.74	0.98	.91
27	78.5	3.9	76.5	5.9	.896	.63	1.93	.83
28	80.8	5.9	77.8	8.9	.934	.95	3.23	.76
29	79.9	3.9	77.9	5.9	.937	10.04	2.06	.83
30	78.4	1.8	77.5	2.7	.925	9.98	0.90	.92
31	78.9	1.8	78.0	2.7	.940	10.13	.91	.92

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of May, 1856.*

*. Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon.

Hour.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer for each hour during the day.			Mean Dry Bulb Thermometer.	Range of the Temperature for each hour during the day.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	°	°	°	°
Mid-night.	29.662	29.794	29.411	0.383	81.9	85.7	77.4	8.3
1	.648	.776	.411	.365	81.5	85.4	76.8	8.6
2	.636	.770	.398	.372	81.1	84.8	75.5	9.3
3	.627	.749	.388	.361	80.8	84.5	75.4	9.1
4	.636	.753	.381	.372	80.7	84.5	76.0	8.5
5	.637	.758	.385	.373	80.4	84.9	76.0	8.9
6	.663	.787	.404	.383	80.5	84.6	76.0	8.6
7	.684	.824	.407	.417	81.9	85.8	77.3	8.5
8	.700	.868	.436	.432	84.1	88.0	79.4	8.6
9	.708	.866	.455	.411	86.5	89.8	79.8	10.0
10	.708	.862	.462	.400	88.3	92.0	79.6	12.4
11	.694	.851	.458	.393	89.7	93.9	79.6	14.3
Noon.	.676	.823	.444	.379	90.6	96.4	79.8	16.6
1	.654	.801	.428	.373	91.1	96.6	79.8	16.8
2	.627	.775	.397	.378	91.3	97.0	79.9	17.1
3	.608	.736	.386	.350	90.7	96.7	78.6	18.1
4	.587	.706	.379	.327	89.7	95.5	75.6	19.9
5	.584	.698	.358	.340	88.4	93.6	76.3	17.3
6	.596	.729	.369	.360	86.6	92.6	75.8	16.8
7	.619	.765	.372	.393	84.4	90.2	76.2	14.0
8	.650	.790	.395	.395	82.9	88.4	75.5	12.9
9	.664	.827	.415	.412	82.4	86.8	77.6	9.2
10	.665	.809	.434	.375	81.7	86.4	74.8	11.6
11	.666	.811	.430	.381	81.5	86.0	75.0	11.0

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of May, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon.

Hour.	Mean Wet Bulb Thermo- meter.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a Cubic foot of Air.	Additional Weight of Va- pour required for com- plete saturation.	Mean degree of Humidity, complete saturation be- ing unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
Mid- night.	{ 78.6	3.3	76.9	5.0	0.908	9.76	1.68	0.85
1	78.4	3.1	76.8	4.7	.905	.73	.53	.86
2	78.2	2.9	76.7	4.4	.902	.72	.45	.87
3	78.1	2.7	76.7	4.1	.902	.72	.35	.88
4	78.0	2.7	76.6	4.1	.899	.69	.35	.88
5	77.9	2.5	76.6	3.8	.899	.69	.25	.89
6	78.3	2.2	77.2	3.3	.916	.89	.09	.90
7	79.1	2.8	77.7	4.2	.931	10.02	.42	.88
8	79.9	4.2	77.8	6.3	.934	.01	2.20	.82
9	80.6	5.9	77.6	8.9	.928	9.89	3.21	.76
10	81.2	7.1	77.6	10.7	.928	.85	.95	.71
11	81.5	8.2	77.4	12.3	.922	.77	4.60	.68
Noon.	82.0	8.6	77.7	12.9	.931	.84	.92	.67
1	82.0	9.1	77.4	13.7	.922	.73	5.24	.65
2	82.1	9.2	77.5	13.8	.925	.76	.30	.65
3	81.6	9.1	77.0	13.7	.910	.61	.19	.65
4	80.8	8.9	76.3	13.4	.890	.44	4.93	.66
5	80.6	7.8	76.7	11.7	.902	.56	.23	.69
6	80.0	6.6	76.7	9.9	.902	.60	3.54	.73
7	78.9	5.5	76.1	8.3	.885	.48	2.83	.77
8	78.2	4.7	75.8	7.1	.876	.41	.38	.80
9	78.3	4.1	76.2	6.2	.887	.54	.07	.82
10	78.2	3.5	76.4	5.3	.893	.62	1.75	.85
11	78.2	3.3	76.5	5.0	.896	.65	.66	.85

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of May, 1856.*

Solar radiation, Weather, &c. (Continued.)

Date.	Max. Solar radiation.	Rain.	Prevailing direction of the Wind.	General Aspect of the Sky.
	°	Inches.		
1	133.0	1.09	S. E. or S.	↘ & ↙ & ↗; also rain at 10 & 11 P. M.
2	129.0	..	S. E. or S.	Cloudy till 7 P. M., cloudless afterwards.
3	123.0	0.72	S. E. or S. (high)	Cloudy with much rain between Noon & [Sunset.
4	<i>Sunday.</i>		[from 10 A. M. to 1 P. M.)	
5	139.0	..	S. (occasionally high)	Cloudless till 6 A. M., cloudy till 5 P. M.
6	135.0	0.68	S. W. or S.	Cloudy. [cloudless afterwards.
7	128.9	..	S. W. (high) or S.	Cloudy till 2 P. M., cloudless afterwards.
8	126.0	..	S.	Cloudless till 5 P. M., cloudy afterwards [also slightly drizzling at 9 P. M.
9	133.0	..	S. E. or S. (both high) also a squall from W. at 8 P. M.	Cloudless till 6 A. M., scattered ↗ till 1 P. M., cloudless till 5 P. M., cloudy with thunder and lightning afterwards.
10	128.7	..	S. E. or S. (both high)	Cloudy.
11	<i>Sunday.</i>			
12	135.0	..	S. or S. E.	Cloudy. [wards.
13	132.0	..	S. or S. E.	Cloudless till 6 A. M., scattered ↗ after-
14	128.0	1.96	S. E. or N. E.	Cloudy, also a very violent gale accom- panied by much rain & lightning & an incessant fall of hail stones between 7 & 8 P. M.
15	..	..	S. E.	Cloudy, also a slight drizzling with much [lightning and thundering at 5 P. M.
16	116.8	..	S. E. or S.	Cloudy.
17	132.7	..	S. E. or E. (high)	Clouds of various kinds.
18	<i>Sunday.</i>			
19	133.0	..	Calm or S. E.	Scattered ↗.
20	130.0	..	S. or S. E. or S.	Scattered clouds.
21	125.0	} 0.13	S. E. or S. (high)	Scattered clouds; also drizzling with some [thunder & lightning after 8 P. M. [set.
22	131.8		S. or S. E.	Cloudy with occasional drizzling after sun-
23	125.0		N. W. or S. or S. E.	Cloudy till 7 P. M.; cloudless afterwards.
24	..	0.76	S. E.	Cloudy the whole day; also some rain in [the afternoon & during the night.
25	<i>Sunday.</i>	0.36		
26		0.20	S. E. or N. E.	Cloudy with some rain in the afternoon.
27	122.0	..	N. E.	Cloudy. [↗ & ↗ afterwards.
28	133.0	..	S. E. or N. E. or S. W.	Cloudless till 5 A. M., scattered ↘ & ↙
29	118.0	0.16	N. W. or S. or S. E.	Scattered clouds, also little rain between [1 & 2 P. M.
30	..	0.86	S. E. or N. E.	Cloudy with constantly drizzling.
31	..	1.26	E.	Cloudy and constantly raining.

↘ Cirri, ↙ Cirro-strati, ↗ Cumuli, ↗ Cumulo-strati, ↘ Nimbi, — Strati,
↙ Cirro-cumuli.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
for the month of May, 1856.*

MONTHLY RESULTS.

			Inches.
Mean height of the Barometer, for the month,	..	..	29.650
Max. height of the Barometer, occurred at 8 A. M. on the 19th,	..	..	29.868
Min. height of the Barometer, occurred at 5 P. M. on the 30th,	..	..	29.358
Extreme Range of the Barometer, during the month,	..	..	0.510

			0
Mean dry bulb Thermometer for the month,	..	..	85.0
Max. Temperature occurred at 2 P. M. on the 12th,	..	..	97.0
Min. Temperature, occurred at 10 P. M. on the 1st,	..	..	74.8
Extreme Range of the Temperature, during the month,	..	..	22.2

Mean wet bulb Thermometer for the month,	..	..	79.6
Mean dry bulb Thermometer, above Mean wet bulb Thermometer,	..	..	5.4
Computed Mean dew point for the month,	..	..	76.9
Mean dry bulb Thermometer above computed Mean Dew point,	..	..	8.1
			Inches.
Mean elastic force of vapour for the month,	..	..	0.908
			Troy grains.
Mean weight of vapour for the month,	..	..	9.70
Additional weight of vapour required for complete saturation,	..	..	2.83
Mean degree of humidity for the month, complete saturation being unity.			0.77
			Inches.
Rained 12 days. Max. fall of rain during 24 hours,	..	..	1.96
Total amount of Rain during the month,	..	..	8.18

A very violent N. E. gale accompanied by much thundering, lightning and rain and an incessant fall of hail stones occurred between 7 & 8 P. M. on the 14th. The observations taken after 10 minutes intervals during the gale, are forthcoming at the Surveyor General's Office.

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of May, 1856.

Maximum pressure observed at 9.50 A. M.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.325	99.0	99.4	75.8	S. W.	..	Clear.
2	29.235	101.9	102.5	76.2	S. E.	..	Ditto.
3	29.205	94.0	94.8	79.0	W. E.	..	Ditto.
4	29.235	91.0	91.5	75.0	W.	..	Ditto.
5	29.295	93.0	93.4	76.5	S. E.	..	Ditto.
6	29.289	99.5	99.8	75.0	S. W.	..	Ditto.
7	29.263	100.5	101.3	72.2	W.	..	Ditto.
8	29.229	100.0	100.6	71.5	W.	..	~ scattered in zenith.
9	29.183	101.9	102.5	72.0	W.	..	Clear.
10	29.273	100.9	102.0	73.6	N.	..	Ditto.
11	29.249	100.4	101.0	72.3	W.	..	Ditto.
12	29.225	101.0	101.2	72.0	W.	..	Ditto.
13	29.225	99.8	100.5	72.0	N. W.	..	Ditto.
14	29.221	99.8	100.0	71.5	W.	..	Ditto.
15	29.215	98.2	98.5	73.0	W.	..	Ditto.
16	29.231	97.6	97.9	76.0	E.	..	Ditto.
17	29.271	91.0	91.9	75.0	E.	..	Ditto.
18	29.355	95.4	96.0	73.8	S. E.	..	Ditto.
19	29.331	98.5	98.5	75.0	S. E.	..	Ditto.
20	29.255	103.9	104.5	74.0	W.	..	Ditto.
21	29.283	101.5	101.9	74.8	N. E.	..	Ditto.
22	29.275	102.5	101.5	81.0	E.	..	Ditto.
23	29.201	94.5	95.0	77.0	E.	..	Ditto.
24	29.275	88.5	89.0	76.5	E.	..	~ scattered
25	29.181	97.0	97.6	76.2	S. E.	..	Clear.
26	29.129	98.8	99.0	78.5	W.	..	Ditto.
27	29.149	98.9	99.0	79.0	E.	..	Ditto.
28	29.183	100.5	100.8	78.8	S. W.	..	Ditto.
29	29.103	98.0	98.2	78.5	N. E.	..	Ditto.
30	29.085	97.0	97.5	80.0	S. E.	..	Ditto.
31	29.165	89.0	89.0	74.9	N. E.	1.62	~ scattered.
Mean.	29.227	97.8	98.2	75.3		1.62	

Barometer Observations corrected for Capillarity only.

Symbols. { \ Cirus.
 { / Cirro strata.
 { > Cumuli.
 { ^ Cumulo strata.
 { ~ Nimbi or Nimbus.

Note.—The dry bulb and maximum Register do not agree; the former always reads more than the latter. The average difference is 1.6.

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of May, 1856.

Observations at apparent Noon.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.285	102.0	102.5	74.5	S. W.	..	Clear.
2	29.205	104.0	105.0	77.0	W.	..	Ditto.
3	29.181	99.9	101.4	80.5	E.	..	Ditto.
4	29.205	95.0	95.6	76.0	N.	..	Ditto.
5	29.277	96.9	97.8	78.4	S. W.	..	Ditto.
6	29.279	102.8	103.5	76.0	S. W.	..	Ditto.
7	29.241	105.2	105.5	72.5	W.	..	Ditto.
8	29.215	108.8	104.0	72.5	W.	..	~ scattered.
9	29.171	106.8	107.0	74.0	W.	..	Clear.
10	29.259	104.5	105.5	75.0	N.	..	Ditto.
11	29.229	104.5	104.8	73.0	W.	..	Ditto.
12	29.199	104.3	103.5	72.5	W.	..	Ditto.
13	29.215	102.5	104.5	73.0	N. W.	..	Ditto.
14	29.197	102.0	102.2	74.3	W.	..	Ditto.
15	29.189	101.0	101.9	74.0	W.	..	Ditto.
16	29.209	101.0	101.9	75.0	S. W.	..	Ditto.
17	29.255	96.0	97.2	76.4	E.	..	Ditto.
18	29.329	99.9	100.5	75.4	S. E.	..	Ditto.
19	29.305	101.0	101.2	75.5	N. E.	..	Ditto.
20	29.245	108.8	108.5	72.5	W.	..	Ditto.
21	29.267	105.0	106.0	76.0	N. E.	..	Ditto.
22	29.255	107.0	107.5	77.0	N. E.	..	Ditto.
23	29.193	98.2	99.5	78.4	E.	..	Hazy.
24	29.261	93.0	93.5	77.0	E.	..	~ scattered.
25	29.161	100.9	100.5	77.0	S.	..	Clear.
26	29.095	102.5	102.5	77.5	W.	..	Ditto.
27	29.129	102.0	102.5	78.0	N.	..	Ditto.
28	29.153	103.8	104.3	80.0	N. W.	..	Ditto.
29	29.075	101.0	101.5	79.4	W.	..	Ditto.
30	29.075	101.5	102.0	80.3	N. E.	..	Ditto.
31	29.139	93.5	94.0	76.3	N. E.	..	Hazy.
Mean.	29.209	101.6	102.2	75.9			

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of May, 1856.

Minimum pressure observed at 4 P. M.

Date.	Barometer.	Temperature.			Maximum and Minimum.			Aspect of the Sky.	Direction of Wind.	Quantity of Rain.	Total Rain.
		Of Mercury.	Of Air.	Wet Bulb.	Maximum.	Minimum.	Mean.				
1	29.189	106.5	106.2	77.0	106.3	85.5	95.9	Clear.	N. W.	..	..
2	29.111	110.0	111.0	76.5	111.2	89.0	100.1	Ditto.	N. W.	..	..
3	29.115	107.5	107.0	82.5	107.2	87.0	97.1	Ditto.	W.	..	..
4	29.165	103.6	103.5	77.9	111.0	87.5	99.25	Ditto.	N. W.	..	..
5	29.205	103.0	103.5	78.7	103.5	81.0	92.25	Ditto.	S. W.	..	..
6	29.199	107.0	107.0	75.4	107.0	87.0	97.0	Ditto.	W.	..	..
7	29.167	109.9	108.5	71.8	109.8	89.5	99.65	^ scattered.	W.	..	..
8	29.139	108.9	108.0	72.2	110.0	90.5	100.2	^ scattered.	N. W.	..	..
9	29.105	111.2	111.0	74.2	111.0	89.0	100.0	Clear.	W.	..	..
10	29.183	106.8	106.5	74.5	109.0	87.5	98.25	^ scattered to	N. W.	..	..
11	29.173	107.5	107.0	75.5	107.5	88.0	97.75	Clear. [N. E.	W.	..	..
12	29.139	107.5	107.5	72.0	107.5	87.5	97.5	^ scattered.	W.	..	..
13	29.135	107.2	106.5	73.5	106.5	87.0	96.75	^ ditto.	W.	..	..
14	29.129	106.0	106.0	76.0	106.0	87.8	96.9	Clear.	W.	..	..
15	29.119	106.4	106.4	74.2	106.4	91.0	98.7	Ditto.	N. W.	..	..
16	29.135	107.8	108.0	72.9	107.9	84.5	96.2	^ scattered.	N. W.	..	..
17	29.193	103.0	103.5	76.0	106.6	85.0	95.8	Clear.	E.	..	..
18	29.239	106.5	106.2	75.8	106.5	86.0	96.25	Ditto.	N. W.	..	..
19	29.205	107.0	107.0	78.5	107.0	85.8	96.4	Ditto.	N. W.	..	..
20	29.189	112.5	112.4	75.0	112.0	89.0	100.5	Ditto.	W.	..	..
21	29.205	110.5	110.5	78.2	110.5	89.0	99.75	Ditto.	N. E.	..	..
22	29.193	111.2	111.0	76.9	111.0	92.8	101.9	Ditto.	N. W.	..	..
23	29.119	100.0	100.0	77.0	100.5	84.5	92.5	Hazy.	E.	..	..
24	29.157	98.0	98.0	76.5	98.0	79.8	88.9	Clear.	E.	..	..
25	29.033	104.9	106.0	79.0	105.5	83.9	94.7	Ditto.	N. W.	..	..
26	29.013	106.8	106.8	79.0	107.0	90.8	98.9	Ditto.	N. W.	..	..
27	29.071	105.8	105.4	81.9	105.5	85.5	95.5	Ditto.	N.	..	..
28	29.091	98.0	98.0	74.0	110.0	90.0	100.0	Stormy.	W.	..	..
29	29.967	106.2	105.0	82.4	106.0	87.0	96.5	Hazy.	W.	..	..
30	29.979	103.8	103.0	80.5	104.2	91.2	97.7	Clear.	E.	..	..
31	29.049	99.9	99.4	80.5	100.0	69.8	84.9	^ scattered.	N. E.	..	..
Mean.	29.132	106.1	105.9	76.6	107.0	86.7	96.89				

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of June, 1856.

Maximum pressure observed at 9.50 A. M.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.147	90.5	91.4	74.8	E.	..	~ scattered.
2	29.077	80.8	78.4	74.0	N. E.	..	~ all over.
3	29.245	81.5	82.0	77.0	S. E.	..	~ scattered.
4	29.265	85.9	86.0	80.2	N. E.	..	~ scattered in zenith.
5	29.247	88.0	88.0	80.0	S. E.	..	Clear.
6	29.231	90.5	90.6	81.2	S. E.	..	Ditto.
7	29.147	92.0	92.7	81.6	E.	..	~ scattered towards E.
8	29.155	93.8	93.5	80.0	E.	..	~ scattered.
9	29.133	90.9	91.0	80.5	E.	..	~ ditto all over.
10	29.095	92.5	93.0	81.5	S. E.	..	~ ditto.
11	29.087	83.2	82.5	80.4	N. W.	1.37	~ all over.
12	29.063	85.3	85.9	82.0	N. E.	..	~ ditto.
13	28.991	86.0	86.4	82.4	S.	..	~ scattered.
14	29.005	90.9	91.0	78.5	N. W.	..	~ ditto.
15	29.061	93.0	93.8	81.0	N. W.	..	~ ditto.
16	29.037	91.5	92.0	81.5	S. W.	..	~ ditto.
17	29.035	90.8	91.5	80.9	W.	..	Clear.
18	29.059	95.0	95.5	80.5	N. W.	..	~ scattered.
19	29.133	88.9	88.8	77.0	N. E.	..	Clear.
20	29.149	91.5	92.0	79.5	N. W.	..	~ scattered in zenith.
21	29.145	94.8	95.0	81.4	N. W.	..	Clear.
22	29.155	98.5	98.9	79.0	N. W.	..	Ditto.
23	29.105	98.0	98.5	78.2	N. W.	..	Ditto.
24	29.055	96.8	97.0	77.8	N. W.	..	Ditto.
25	29.085	95.9	96.2	77.5	N. W.	..	Ditto.
26	29.127	98.8	99.4	80.5	N. W.	..	~ scattered.
27	29.127	98.1	98.5	79.1	N. W.	..	Clear.
28	29.173	92.5	92.0	81.4	N.	..	Ditto.
29	29.141	98.5	99.0	81.2	N. E.	..	~ scattered in zenith.
30	29.073	101.0	101.5	81.6	S. W.	..	Clear.
Mean.	29.118	91.8	92.0	79.7		1.37	

Barometer Observations corrected for Capillarity only.

Symbols. { ~ Cirrus.
 ~ Cirro strata.
 ~ Cumuli.
 ~ Cumulo strata.
 ~ Nimbi or Nimbus.

Note.—The dry bulb and maximum Register do not agree; the former always reads more than the latter. The average difference is 1.6.

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of June, 1856.

Observations at apparent Noon.

Date.	Barometer.	Temperature.			Direction of Wind.	Quantity of Rain.	Aspect of the Sky.
		Of Mercury.	Of Air.	Wet Bulb.			
1	29.123	94.0	95.2	75.2	E.	..	☁ scattered.
2	29.069	77.8	72.5	72.5	N. E.	..	Raining.
3	29.221	84.9	85.8	79.3	S. E.	..	☁ scattered.
4	29.239	89.0	90.1	80.5	E.	..	☁ ditto in zen.
5	29.239	90.1	91.4	79.9	E.	..	☁ scattered in zenith.
6	29.197	92.9	94.2	81.0	S. E.	..	Clear.
7	29.131	95.5	96.0	82.4	S. E.	..	☁ scattered all over.
8	29.137	95.5	96.0	81.0	E.	..	☁ scattered.
9	29.119	93.6	94.2	80.5	S. E.	..	☁ ditto all over.
10	29.069	94.6	95.0	81.5	E.	..	☁ ditto.
11	29.055	86.0	87.0	83.5	N. W.	..	☁ scattered.
12	29.033	87.0	86.4	82.5	N. W.	..	☁ all over
13	29.973	88.4	88.8	83.0	S. W.	..	☁ scattered.
14	28.993	92.4	92.4	80.0	N. W.	..	☁ ditto.
15	29.047	96.0	96.8	81.9	N. W.	..	☁ ditto.
16	29.031	92.0	91.0	82.6	S. W.	..	☁ all over.
17	29.023	93.8	94.0	82.0	W.	..	☁ scattered in zenith.
18	29.055	96.8	97.0	82.5	N. W.	..	☁ all over.
19	29.127	91.5	92.4	80.0	E.	..	Clear.
20	29.143	94.5	95.0	79.0	W.	..	Ditto.
21	29.145	97.9	98.5	78.5	N. W.	..	Ditto.
22	29.141	100.7	100.9	79.5	N. W.	..	Ditto.
23	29.083	100.5	106.8	78.9	N. W.	..	Ditto.
24	29.045	98.9	99.4	78.2	N. W.	..	Ditto.
25	29.085	99.5	100.0	79.4	W.	..	Ditto.
26	29.109	100.0	100.2	80.0	N.	..	Ditto.
27	29.117	100.4	100.4	80.4	N. W.	..	☁ scattered to W. hor.
28	29.149	94.2	94.5	81.0	N.	..	☁ scattered in zenith.
29	29.119	101.8	102.0	81.0	N. E.	..	☁ ditto.
30	29.061	103.8	104.9	80.3	N. W.	..	☁ scattered.
Mean.	29.102	94.1	94.6	80.2			

Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of June, 1856.

Minimum pressure observed at 4 P. M.

Date.	Barometer.	Temperature.			Maximum and Minimum.			Aspect of the Sky.	Direction of Wind.	Quantity of Rain.
		Of Mercury.	Of Air.	Wet Bulb.	Maximum.	Minimum.	Mean.			
								[over.		
1	29.065	91.8	89.8	76.6	95.2	69.5	82.35	~ scattered all	S. E.	..
2	29.005	77.5	77.0	73.0	77.0	75.8	76.4	~ all over.	N. E.	2.22
3	29.157	89.5	89.5	80.4	90.0	71.5	80.75	~ scattered.	E.	..
4	29.137	94.2	95.0	80.5	94.5	77.5	86.0	Clear.	N. E.	..
5	29.143	94.5	94.5	79.9	94.5	79.0	86.75	Ditto.	E.	..
6	29.099	97.9	98.2	80.0	98.0	81.8	89.9	Ditto. [over.	E.	..
7	29.055	99.7	99.5	81.8	99.8	86.0	92.9	~ scattered all	S. E.	..
8	29.051	98.5	98.5	81.2	98.5	85.0	91.75	~ scattered.	E.	..
9	29.017	97.0	96.5	80.2	97.0	84.0	90.5	~ ditto.	E.	..
10	29.005	91.2	87.9	80.2	97.8	84.8	91.3	~ ditto.	N. E.	..
11	29.033	83.8	83.4	80.9	89.0	79.0	84.0	~ raining.	N.	..
12	28.959	83.9	83.9	79.8	89.5	79.0	84.25	~ scattered.	S.	..
13	28.917	86.0	81.0	79.0	91.2	79.0	85.1	~ twds. N.E.	S. W.	0.24
14	28.935	96.9	96.4	81.0	96.8	79.5	88.15	~ scattered.	N. W.	..
15	28.979	85.8	86.0	81.5	97.0	83.8	90.4	~ all over.	N. W.	0.12
16	28.959	95.9	95.6	82.0	95.5	81.5	88.5	Clear. [W.	W.	..
17	28.961	98.4	98.9	81.0	98.0	80.0	89.0	~ scatd. twds.	W.	..
18	29.005	89.0	83.2	78.2	97.0	80.3	88.65	~ scattered.	N. E.	0.62
19	29.099	84.0	84.5	79.2	93.0	82.0	87.5	~ all over	S. W.	0.07
20	29.077	101.0	101.0	79.8	100.5	81.3	90.9	Clear.	N. W.	..
21	29.043	102.5	103.0	79.5	103.0	81.5	92.25	Ditto.	N. W.	..
22	29.067	104.8	105.0	82.0	105.0	89.0	97.0	Ditto.	N. W.	..
23	29.021	106.8	106.5	80.5	106.8	89.0	97.9	Ditto.	N. W.	..
24	28.983	103.9	103.0	81.0	103.8	89.0	96.4	Ditto.	W.	..
25	29.031	103.5	103.0	79.0	103.5	89.0	96.25	Ditto.	W.	..
26	29.021	104.0	104.4	82.0	105.0	88.0	96.5	~ scattered.	W.	..
27	29.031	105.5	105.0	80.5	106.0	88.2	97.1	~ all over.	N. W.	..
28	29.065	99.9	99.5	82.0	99.5	81.0	90.25	Clear. [zen.	N.	..
29	29.025	104.8	104.1	81.0	105.0	95.0	100.0	~ scattered in	N.	..
30	28.987	109.0	109.0	82.2	109.0	83.0	96.0	~ ditto.	N. W.	..
Mean.	29.031	96.1	95.4	80.2	97.8	82.4	90.15			3.27

Errata in the Paper called Routes from Kathmandu to Peking.

P. 6, line 10, *for* Cinchi *read* Chinchí.

P. 6, line 3 from bottom, *for* $52\frac{1}{2}$ *read* $55\frac{1}{2}$.

P. 8, lines 10—12 *read* latitude *for* longitude and vice versâ, and p. 13, latitudinal *for* longitudinal.

P. 10. After reason 2nd, *for* regarding Tibet as a plateau, *insert* as reason 3rd as follows—

“3rd. The numerous places in the Map of Tibet, the names of which are compounded with the above words, as Chanthang in Nari, Nithang in U, and Lhasa lung and Phemba lung both in U'. Such words demonstrate the existence of numerous plains and valleys, and we know, otherwise, that many of these plains and valleys are of great extent.” Dele the note.

Alter the subsequent numbers 3rd, 4th, 5th to 4th, 5th, 6th.

P. 10, line 3 from bottom, *for* Thassa *read* Thápa.

P. 12, line 2, after Sanscrit Geography *insert* the words “and which region is named Tso-tso in Tibetan.” For Erú passim read Éru.

P. 14, line 9, *for* Galdeso *read* Galdso.
